

7th Grade SCIENCE PACING GUIDE

FIRST QUARTER				
TOPICS	PACING	LESSONS	STANDARDS	LEARNING OBJECTIVES
<div style="text-align: center;">  <p>1</p> <p><i>Introduction To Matter</i></p> </div>	<div style="background-color: #005596; color: white; padding: 5px; border-radius: 10px; display: inline-block;">18 Days</div>	<p>Lesson 1: Describe and Classifying Matter</p> <p>Lesson 2: Physical Properties of Matter</p> <p>Lesson 3: Changes in Matter</p>	<p>7PS1.1 7PS1.2</p>	<p style="text-align: center;"><u>Lesson 1</u></p> <p>Students will construct and use models to explain and describe:</p> <ul style="list-style-type: none"> what makes up matter <p>Students will use visual examples to describe:</p> <ul style="list-style-type: none"> the properties of matter examples of chemical and physical properties of matter <p>Students will cite evidence to classify:</p> <ul style="list-style-type: none"> different types of matter homogeneous and heterogeneous mixtures <p style="text-align: center;"><u>Lesson 2</u></p> <p>Students will use evidence to identify and describe:</p> <ul style="list-style-type: none"> how matter can be measured how mass compares to weight <p>Students will analyze data to identify and calculate:</p> <ul style="list-style-type: none"> properties of matter that can be determined through measurement density as a function of mass and volume <p style="text-align: center;"><u>Lesson 3</u></p> <p>Students will use ratio reasoning and data to determine:</p> <ul style="list-style-type: none"> how matter is conserved during a physical and a chemical change how thermal energy is transformed during a chemical change <p>Students will write to explain:</p> <ul style="list-style-type: none"> the difference between physical and chemical change how changes in matter are related to changes in energy <p>Students will develop and use models to demonstrate:</p> <ul style="list-style-type: none"> how the arrangement and movement of particles compare in solids, liquids, and gases
<div style="text-align: center;">  <p>2</p> </div>	<div style="background-color: #005596; color: white; padding: 5px; border-radius: 10px; display: inline-block;">11 Days</div>	<p>Lesson 1: States of Matter</p>	<p>7PS1.3</p>	<p style="text-align: center;"><u>Lesson 1</u></p> <p>Students will write informational text to explain:</p> <ul style="list-style-type: none"> similarities and differences between solids, liquids, and gases similarities and differences between high-viscosity liquids and low-viscosity liquids <p>Students will develop and use models to demonstrate:</p>

Solid, Liquids, Gases		Lesson 2: Changes of State		<ul style="list-style-type: none"> how the arrangement and movement of particles compare in solids, liquids, and gases <p>Lesson 2</p> <p>Students will describe cause and effect relationships related to:</p> <ul style="list-style-type: none"> the role thermal energy plays in particle motion the role thermal energy plays in changes of state <p>Students will use text information to explain:</p> <ul style="list-style-type: none"> how pressure affects a change of state from a liquid to a gas <p>Students will develop and use models to describe:</p> <ul style="list-style-type: none"> what happens to particles of matter during changes of state between solids, liquids, and gases
<div>3</div> <p>Chemical Reactions</p>	18 Days	<p>Lesson 1: Chemical Changes</p> <p>Lesson 2: Modeling Chemical Reactions</p> <p>Lesson 3: Food, Energy, and Chemical Reactions</p>	<p>7PS3.1 7PS1.4 7PS3.2</p>	<p>Lesson 1:</p> <p>Students will analyze and interpret data about the properties of substances to determine:</p> <ul style="list-style-type: none"> if a change in matter is physical or chemical <p>Students will identify and describe:</p> <ul style="list-style-type: none"> the factors that affect the rate at which a chemical reaction occurs <p>Lesson 2:</p> <p>Students will interpret and develop models to identify components of a chemical reaction including:</p> <ul style="list-style-type: none"> products reactants number of atoms and molecules <p>Students will use chemical equations to:</p> <ul style="list-style-type: none"> model mass conservation during a chemical change <p>Lesson 3:</p> <p>Students will construct an explanation:</p> <ul style="list-style-type: none"> how organisms use cellular respiration to break down food to provide energy <p>Students will explain:</p> <ul style="list-style-type: none"> how cells can release energy without using oxygen the roles of light, carbon dioxide, water, and chlorophyll in photosynthesis <p>Students will cite evidence to support:</p> <ul style="list-style-type: none"> that living systems follow the Law of Conservation of Mass and Energy
SECOND QUARTER				
TOPICS	PACING	LESSONS	STANDARDS	LEARNING OBJECTIVES
		<p>Lesson 1: Living Things</p>	<p>7LS1.2</p>	<p>Lesson 1:</p> <p>Students will conduct an investigation to:</p> <ul style="list-style-type: none"> provide evidence that living things are made of cells

<p>4</p> <p><i>Living Things in the Biosphere</i></p>	<p>19 Days</p>	<p>Lesson 2: Bacteria, Protists, and Fungi</p> <p>Lesson 3: Plants and Animals</p>		<p>Students will identify evidence that:</p> <ul style="list-style-type: none"> explains where living things come from <p>Students will investigate to:</p> <ul style="list-style-type: none"> determine how unicellular and multicellular organisms perform basic life functions provide evidence explains what characteristics support the function of all living things <p><u>Lesson 2:</u></p> <p>Student will identify and describe evidence that:</p> <ul style="list-style-type: none"> explains how cellular structure of bacteria support their function explains how parasites impact the function of other organisms <p>Students will construct explanations that:</p> <ul style="list-style-type: none"> explain the common roles fungi have in supporting life <p><u>Lesson 3</u></p> <p>Students will identify and describe:</p> <ul style="list-style-type: none"> characteristics and structures of plants that support their life functions similarities and differences in invertebrates and vertebrates unique traits of animals that help keep them alive
<p>5</p> <p><i>Cells</i></p>	<p>19 Days</p>	<p>Lesson 1: Structure and Function of Cells</p> <p>Lesson 2: Cell Structures</p> <p>Lesson 3: Obtaining and Removing Materials</p>	<p>7LS1.1</p>	<p><u>Lesson 1:</u></p> <p>Students will recognize and explore:</p> <ul style="list-style-type: none"> the components of the cell theory that cells are the basic units of life that cells of all living things extract energy from food, get rid of waste, and reproduce <p>Students will conduct an investigation to:</p> <ul style="list-style-type: none"> provide evidence that all living things are made up of cells distinguish between living and nonliving things based on the presence or absence of cells distinguish why cell function is important for living organisms <p><u>Lesson 2:</u></p> <p>Students will develop and use models to:</p> <ul style="list-style-type: none"> identify the parts of the cell, specifically the nucleus, chloroplast, mitochondria, cell membrane, and cell wall describe how each organelle of a cell contributes to the function of the cell as a whole

				<p>Students will compare and contrast:</p> <ul style="list-style-type: none"> the structure and function of major parts of plants and animal cells <p><u>Lesson 3:</u></p> <p>Students will develop and use a model:</p> <ul style="list-style-type: none"> to describe how cells obtain energy and remove waste materials through the cell membrane
THIRD QUARTER				
TOPICS	PACING	LESSON	STANDARDS	LEARNING OBJECTIVES
<div>9</div> <p><i>Matter and energy in the Ecosystem</i></p>	24 Days	<p>Lesson 1: Energy Flow in Ecosystems</p> <p>Lesson 2: Cycles of Matter</p>	<p>7LS1.7 7LS2.1</p>	<p><u>Lesson 1:</u></p> <p>Students will make models to depict:</p> <ul style="list-style-type: none"> energy flow in an ecosystem <p>Students will use models to analyze:</p> <ul style="list-style-type: none"> how photosynthesis affects energy flow in an ecosystem how cellular respiration affects energy flow in an ecosystem how fermentation affects energy flow in an ecosystem <p><u>Lesson 2:</u></p> <p>Students will construct an explanation for:</p> <ul style="list-style-type: none"> how matter is transferred between the living and nonliving parts of an ecosystem how matter is cycled in an ecosystem how energy flows among biotic and abiotic parts of an ecosystem <p>Students will explain:</p> <ul style="list-style-type: none"> how matter is conserved in an ecosystem how matter is cycled in an ecosystem how energy flows among biotic and abiotic part of an ecosystem
<div>7</div> <p><i>Reproduction, Growth, and Development</i></p>	22 Days	<p>Lesson 1: Patterns of Reproduction</p> <p>Lesson 2: Factors Influencing Growth</p>	<p>7LS1.6 7LS1.4 7LS1.3</p>	<p><u>Lesson 1:</u></p> <p>Students will analyze and investigate:</p> <ul style="list-style-type: none"> how organisms reproduce either sexually and asexually and how these reproductive processes result in the transfer of genetic information to their offspring <p>Students will develop and use models to describe:</p> <ul style="list-style-type: none"> how asexual reproduction results in offspring that are genetically identical while sexual reproduction results in offspring with genetic variation <p>Students will analyze the cause-and-effect relationship between:</p>

		Lesson 3: Reproduction and Human Development		<ul style="list-style-type: none"> the inheritance of half of an offspring's genes from each parent and how this leads to variations in traits <p>Lesson 2:</p> <p>Students will describe the cause-and-effect relationship:</p> <ul style="list-style-type: none"> environment factors that influence an organism's growth genetic factors that influence an organism's growth <p>Students will construct explanations to identify:</p> <ul style="list-style-type: none"> methods to stimulate plant growth <p>Students will identify the mechanisms that factor and control:</p> <ul style="list-style-type: none"> plant growth and animal growth <p>Lesson 3:</p> <p>Students will explain:</p> <ul style="list-style-type: none"> the function of reproductive systems the menstrual cycle interacting with subsystems impacting body functions <p>Students will develop and use models to describe:</p> <ul style="list-style-type: none"> a multicellular organism to explain that the body of humans and other animals is a system of interacting subsystems <p>Students will analyze the cause-and-effect relationship between:</p> <ul style="list-style-type: none"> hormones and behavior in organisms during the reproductive cycle and childbirth
FOURTH QUARTER				
TOPICS	PACING	LESSONS	STANDARDS	LEARNING OBJECTIVES
<div>8</div> <p><i>Genes and Heredity</i></p>	<div>20 Days</div>	<p>Lesson 1: Patterns of Inheritance</p> <p>Lesson 2: Chromosomes and Inheritance</p> <p>Lesson 3: Trait Variation</p>	7LS3.3 7LS3.1 7LS3.2	<p>Lesson 1:</p> <p>Students will examine the history of science to identify:</p> <ul style="list-style-type: none"> Gregory Mendel's contribution to the fields of genetics and inheritance <p>Students will use a model to describe:</p> <ul style="list-style-type: none"> how variation in inherited alleles results in different phenotypic and genotypic expressions <p>Lesson 2:</p> <p>Students will develop models to differentiate between:</p> <ul style="list-style-type: none"> genes, alleles, and chromosomes and determine how they are related to inheritance <p>Students will use a model to demonstrate and describe the cause and effect of:</p> <ul style="list-style-type: none"> the influence of pedigree on variations in inherited traits across generations <p>Students will use models to compare and contrast:</p>

				<ul style="list-style-type: none"> the formation of sex cells during meiosis and the process of cell division the relationship between genes, proteins, and individual's traits <p><u>Lesson 3:</u></p> <p>Students will construct explanations by:</p> <ul style="list-style-type: none"> determining sex-linked inheritance using Punnett squares analyzing how mutations result in harmful, beneficial, or neutral effects to organism structure and function <p>Students will construct a model to:</p> <ul style="list-style-type: none"> show how genetic mutation occurs <p>Students will use a model to:</p> <ul style="list-style-type: none"> relate environmental factors to genetic mutations <p>Students will develop and use a model to predict:</p> <ul style="list-style-type: none"> The probability of dominant and recessive alleles
<div>6</div> <p>Body Systems</p>	<div>28 Days</div>	<p>Lesson 1: Body Organization</p> <p>Lesson 2: Systems Interacting</p> <p>Lesson 3: Supplying Energy</p> <p>Lesson 5: Controlling Processes</p> <p>Lesson 4: Managing Materials</p>	<p>7LS1.3 7ETS1.1 7LS1.5</p>	<p><u>Lesson 1:</u></p> <p>Students will use textual evidence to:</p> <ul style="list-style-type: none"> list the levels of organization in the body describe the organization of body systems describe the function of cells, tissue, organs, and body systems <p>Students will use evidence to construct and support arguments to:</p> <ul style="list-style-type: none"> compare the structure and function of the body systems to other systems (e.g. invertebrates) explain the general functions of body systems, including how they work together to function <p><u>Lesson 2:</u></p> <p>Students will identify evidence to describe and explain:</p> <ul style="list-style-type: none"> stimulus-response situation how the glands of the endocrine system control body processes how the nervous system compares to the endocrine system how systems interact to maintain homeostasis <p>Students will identify evidence to predict and describe:</p> <ul style="list-style-type: none"> what may happen if one body system stops interacting with another how blocked blood vessels affect cells how healthy choices affect organ systems <p><u>Lesson 3:</u></p> <p>Students will identify and explain:</p>

				<ul style="list-style-type: none"> the important nutrients a body needs to carry out its processes how the body's systems process the foods you eat <p>Students will develop arguments to explain:</p> <ul style="list-style-type: none"> why some food choices are healthier than others how food becomes materials the body can use <p>Students will analyze proportional relationships to determine:</p> <ul style="list-style-type: none"> the total recommended daily allowances of nutrients <p><u>Lesson 4:</u></p> <p>Students will use textual evidence to explain:</p> <ul style="list-style-type: none"> how body systems interact to transport materials throughout the body <p>Students will analyze diagrams to explain:</p> <ul style="list-style-type: none"> how the respiratory system interacts with other systems to exchange gases <p>Students will interpret photos and text to explain:</p> <ul style="list-style-type: none"> how other body systems interact with the excretory system to remove waste <p><u>Lesson 5</u></p> <p>Students will use textual evidence to explain:</p> <ul style="list-style-type: none"> what systems control processes in the human body <p>Students will use visuals to explain:</p> <ul style="list-style-type: none"> how nerve signals travel <p>Students will develop and use models to demonstrate:</p> <ul style="list-style-type: none"> how the body senses and reacts to surroundings
7th GRADE FAMILY LIFE CURRICULUM				