

*Pacing Guide*

*Science*

*Parham*

Course: Science		7th Grade Curriculum Mapping		Discovery Education Techbook
ESTIMATED Time Frame/ Date	Content			Essential standards
	Topics Covered	Expectations		
Week 1-2	Scientific Method , Lab instruments, Lab Safety	Using appropriate technology and tools		7.TT.1.1
Week 2	Interaction of Force and Mass	<ul style="list-style-type: none"> <li>Describe and identify an unbalanced force.</li> <li>Predict how an object will move when it is acted on by an unbalanced force.</li> <li>Describe and classify forces that can act on an object.</li> </ul>		7.P.1.1 7.P.1.2 7.P.1.3 7.P.1.4
Week 3	Newton’s Laws	<ul style="list-style-type: none"> <li>Explain and apply Newton’s first law of motion.</li> <li>Explain and apply Newton’s second law of motion.</li> <li>Explain and apply Newton’s third law of motion.</li> </ul>		7.P.1.1 7.P.1.2 7.P.1.3 7.P.1.4
Week 4	Magnets	<ul style="list-style-type: none"> <li>Explain what a magnet is.</li> <li>Describe a magnetic field and the behavior of magnets and magnetic materials within that field.</li> <li>Identify factors that affect the strength of a magnet’s attraction.</li> <li>Make their own compass and describe how a compass works.</li> </ul>		7.P.1.1 7.P.1.2 7.P.1.3 7.P.1.4
Week 5	Straight Line Motion	<ul style="list-style-type: none"> <li>Describe the motion of an object in terms of its change in position over time compared to a reference point.</li> <li>Explain why motion can only be described in comparison to a reference point.</li> <li>Explain and demonstrate that changes in motion are due to unbalanced forces acting on an object.</li> </ul>		7.P.1.1 7.P.1.2 7.P.1.3 7.P.1.4

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<b>Week 6</b>	Friction	<ul style="list-style-type: none"><li>• Define friction and explain how it relates to kinetic energy and the transfer of energy between objects that are in contact with each other.</li><li>• Describe how friction can affect the motion of an object.</li></ul>	7.P.1.1 7.P.1.2 7.P.1.3 7.P.1.4
<b>Week 7</b>	Speed, Velocity, and Acceleration	<ul style="list-style-type: none"><li>• Distinguish between speed, velocity and acceleration.</li><li>• Calculate an object's speed given the distance the object travels in a given amount of time.</li><li>• Describe an object's velocity in terms of its speed and direction.</li><li>• Calculate an object's acceleration given its change in velocity over time.</li></ul>	7.P.1.1 7.P.1.2 7.P.1.3 7.P.1.4
<b>Week 8</b>	Gravity	<ul style="list-style-type: none"><li>• Explain how gravity affects the motions of objects close to Earth.</li><li>• Model the relationship between acceleration due to gravity and the mass of an object.</li></ul>	7.P.1.1 7.P.1.2 7.P.1.3 7.P.1.4
<b>Week 9</b>	Transfer and Conservation of Energy	<ul style="list-style-type: none"><li>• Explain, using examples, how energy can transfer from one object or place to another.</li><li>• Explain the law of conservation of energy and relate it to the transfer and transformation of energy.</li><li>• Analyze the transfer and transformation of energy in simple systems in terms of the law of conservation of energy.</li><li>• Explain why energy does not always appear to be conserved in some energy transfers and transformations.</li></ul>	7.P.2.3

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<b>Week 10</b>	Kinetic Energy	<ul style="list-style-type: none"><li>• Explain how the kinetic energy of an object depends on its mass and velocity.</li><li>• Generate examples of kinetic energy.</li><li>• Compare kinetic energy to potential energy.</li><li>• Model how kinetic energy can be transformed into potential energy and how potential energy can be transformed into kinetic energy.</li></ul>	7.P.2.1 7.P.2.2
<b>Week 11</b>	Potential Energy	<ul style="list-style-type: none"><li>• Examine examples of different types of potential energy.</li><li>• Compare potential energy to kinetic energy.</li><li>• Model how kinetic energy can be transformed into potential energy and how potential energy can be transformed into kinetic energy.</li><li>• Use a ramp to investigate energy transfer.</li></ul>	7.P.2.1 7.P.2.2
<b>Week 12</b>	Work and Simple Machines Wedges	<ul style="list-style-type: none"><li>• Describe how a wedge is a simple machine that helps people do work.</li><li>• Describe how a wedge changes the input force (effort).</li><li>• Explain how a wedge can be used in a compound machine.</li><li>• Design, construct, and use a wedge or a compound machine that includes a wedge.</li></ul>	7.P.2.4
<b>Week 13</b>	Incline Plane	<ul style="list-style-type: none"><li>• Describe why an inclined plane is a simple machine.</li><li>• Explain how an inclined plane helps people do work.</li><li>• Investigate how the mechanical advantage of an inclined plane relates to the length of the plane.</li><li>• Explain how an inclined plane can be used to transfer force in a system.</li></ul>	7.P.2.4

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<p><b>Week 14</b></p>	<p>Wheel</p>	<ul style="list-style-type: none"><li>• Describe how a wheel and axle act as a simple machine.</li><li>• Explain how a wheel and axle helps people do work.</li><li>• Investigate the mechanical advantage of a wheel and axle in common devices.</li><li>• Explain how a wheel and axle can be used to transfer force in a system.</li></ul>	<p>7.P.2.4</p>
<p><b>Week 15</b></p>	<p>Work</p>	<ul style="list-style-type: none"><li>• Relate work to force and distance.</li><li>• Calculate the amount of work done given the force on an object and the distance it moved.</li><li>• Explain the relationship between energy, work, and power.</li><li>• Explain how machines make work easier.</li><li>• Calculate the mechanical advantage of a simple machine.</li></ul>	<p>7.P.2.4</p>
<p><b>Week 16</b></p>	<p>Pulley</p>	<ul style="list-style-type: none"><li>• Model the three main types of pulleys.</li><li>• Explain how different types of pulleys change the direction of the force or the amount of force needed to lift an object.</li><li>• Measure the amount of force needed to lift a load with a pulley.</li><li>• Explain the relationship between the number of ropes supporting a load in a pulley system and the amount of force needed to lift a load..</li></ul>	<p>7.P.2.4</p>

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<b>Week 17</b>	Screw	<ul style="list-style-type: none"><li>• Describe how a screw is a simple machine.</li><li>• Explain how a screw makes work easier.</li><li>• Investigate how the mechanical advantage of a screw relates to the distance between the threads.</li><li>• Explain how a screw can be used to transfer force in a system.</li></ul>	7.P.2.4
<b>Week 18</b>	Lever	<ul style="list-style-type: none"><li>• Explain how the three classes of levers are simple machines that help people do work.</li><li>• Investigate how each class of lever changes the amount and/or direction of force.</li><li>• Explain how a lever can be used to transfer force in a system.</li></ul>	7.P.2.4
<b>Week 19</b>	Cells Protists	<ul style="list-style-type: none"><li>• Explain why Protista is so diverse</li><li>• Explain what all protists have in common</li><li>• Describe the structures that allow protists to move</li><li>• Classify common protists</li><li>• Explain how protists get energy from their environment</li><li>• Explain the ecological and environmental significance of different protists</li><li>• Describe the life cycle of a common protist</li></ul>	7.L.1.1
<b>Week 20</b>	Functions of Life	<ul style="list-style-type: none"><li>• Describe the life processes cells perform.</li><li>• Explain how plant and animal cell organelles perform life processes.</li><li>• Explain how the functions of individual cells are related to the life functions of organisms.</li></ul>	7.L.1.1 7.L.1.2

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<p><b>Week 21</b></p>	<p>Structures of Life</p>	<ul style="list-style-type: none"><li>• Explain what cells are and why cells are important.</li><li>• Compare and contrast the organelles and other structures that most cells have in common.</li><li>• Distinguish between the cells in unicellular and multicellular organisms.</li><li>• Explain how the structure and function of multicellular organism depends on the interaction of tissues, organs, and organ systems.</li></ul>	<p>7.L.1.1 7.L.1.2</p>
<p><b>Week 23</b></p>	<p>Mendel and Heredity</p>	<ul style="list-style-type: none"><li>• Describe how dominant and recessive traits may be inherited.</li><li>• Predict the probable genotype of offspring based on the genotypes of the parents.</li><li>• Describe the discovery and process of artificial selection.</li></ul>	<p>7.L.2.2</p>
<p><b>Week24</b></p>	<p>Sexual Reproduction</p>	<ul style="list-style-type: none"><li>• Describe the process of sexual reproduction on a cellular level.</li><li>• Explain the difference between gametes and other (somatic) cells.</li><li>• Explain why sexual reproduction results in genetic diversity.</li><li>• Explain how characteristics and behaviors can make animals more likely to mate.</li><li>• Describe the process of pollination.</li><li>• Describe how various features of a flower assist pollination.</li><li>• Explain how animals and the environment can affect pollination.</li></ul>	<p>7.L.2.1</p>

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<p><b>Week 25</b></p>	<p>Human Growth and Development</p>	<ul style="list-style-type: none"><li>• Explain how environmental and biological factors influence human growth and development.</li><li>• Understand the role of genes and inheritance on human characteristics.</li><li>• Explain how certain genetic diseases or disorders can alter growth.</li></ul>	<p>7.L.2.3</p>
<p><b>Week 26</b></p>	<p>Asexual Reproduction</p>	<ul style="list-style-type: none"><li>• Describe the different modes of asexual reproduction and identify organisms that reproduce asexually.</li><li>• Evaluate the advantages and disadvantages of asexual reproduction.</li><li>• Compare and contrast how asexual reproduction differs from sexual reproduction.</li><li>• Explain why organisms produced asexually are genetically identical to their parents and siblings.</li></ul>	<p>7.L.2.1</p>
<p><b>Week 27</b></p>	<p>Body Systems Muscular System</p>	<ul style="list-style-type: none"><li>• Describe functions of the muscular system.</li><li>• Know that there are three types of muscles: skeletal, smooth, and cardiac and distinguish between them.</li><li>• Explain how skeletal, smooth, and cardiac muscle types function within our bodies.</li><li>• Perform simple activities that use all three types of muscles.</li><li>• Describe ways that body systems interact with each other.</li></ul>	<p>7.L.1.4</p>

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<p><b>Week 28</b></p>	<p>Skeleton System</p>	<ul style="list-style-type: none"><li>• Describe and give examples of the main functions of the skeletal system.</li><li>• Demonstrate and explain some of the ways joints help us move.</li><li>• Identify some components of bones, and their functions.</li><li>• Use a magnifying glass to examine the structure of bone.</li><li>• Explain the different properties and roles of bone, ligament, and cartilage.</li></ul>	<p>7.L.1.4</p>
<p><b>Week 29</b></p>	<p>Digestive System</p>	<ul style="list-style-type: none"><li>• Describe the process and function of digestion and the organs involved.</li><li>• Work with their classmates to create a model of the digestive system.</li><li>• Explain how food moves through the alimentary canal.</li></ul>	<p>7.L.1.4</p>
<p><b>Week 30</b></p>	<p>Excretory System</p>	<ul style="list-style-type: none"><li>• Compare and contrast excretion and elimination.</li><li>• Describe the structures making up the human excretory system.</li><li>• Describe the functions of the structures in the human excretory system.</li><li>• Explain how the human body manages its fecal and metabolic waste.</li></ul>	<p>7.L.1.4</p>
<p><b>Week 31</b></p>	<p>Circulatory System</p>	<ul style="list-style-type: none"><li>• Describe the function of the circulatory system.</li><li>• Create a drawing to illustrate the path of circulation in the body.</li><li>• Know the difference between veins, arteries, and capillaries.</li><li>• Understand the structure and function of the heart.</li></ul>	<p>7.L.1.4</p>



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<p><b>Week 32</b></p>	<p>Respiratory System</p>	<ul style="list-style-type: none"><li>• Explain the function of the respiratory system.</li><li>• Explain how the diaphragm causes inhalation and exhalation of air in the lungs.</li><li>• Create a diagram to illustrate what happens when we breathe.</li><li>• Explain why lungs are important to the body.</li><li>• Explain how inhalation and exhalation take in oxygen and release carbon dioxide in humans.</li><li>• Make connections between the respiratory system and other body systems.</li><li>• Describe how different factors impact lung health and breathing abilities.</li></ul>	<p>7.L.1.4</p>
<p><b>Week 33</b></p>	<p>Reproductive System</p>	<ul style="list-style-type: none"><li>• Describe the process of sexual reproduction in humans.</li><li>• Identify the main parts and functions of the male and female reproductive systems.</li><li>• Compare the growth and development of the reproductive systems of men and women.</li><li>• Describe the process of menstruation in females.</li></ul>	<p>7.L.1.4</p>

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<p><b>Week 34</b></p>	<p>Earth's Atmosphere Air Composition</p>	<ul style="list-style-type: none"><li>•</li><li>• Distinguish between the relative amounts and kinds of elements and compounds that comprise the atmosphere.</li><li>• Investigate the many gaseous compounds and particles released into the atmosphere by human activity and natural causes.</li><li>• Connect the known effects of human-released materials in the atmosphere to human health.</li><li>• Compare and contrast the effects of ozone near the surface versus ozone in the stratosphere.</li><li>• Explore the greenhouse effect and its relationship to atmospheric composition.</li><li>• Assess the effects air pollutants have on the environment.</li></ul>	<p>7.E.1.6</p>
<p><b>Week 35</b></p>	<p>Energy Transfer and the water cycle</p>	<ul style="list-style-type: none"><li>• Describe the main processes of the water cycle.</li><li>• Explain how the force of gravity and energy from the sun drive the water cycle.</li><li>• Explain how weather is related to water cycle processes.</li><li>• Explain how energy from the sun drives wind and water currents.</li><li>• Explain how energy from the sun is distributed around the globe.</li></ul>	<p>7.E.1.2 7.E.1.3</p>
<p><b>Week 36</b></p>	<p>Meteorology</p>	<ul style="list-style-type: none"><li>• Describe tools meteorologists use to study weather.</li><li>• Interpret a weather map.</li><li>• Explain how air masses form and move from one region to another.</li><li>• Predict weather changes associated with different types of fronts.</li><li>• Explain how clouds and precipitation form.</li></ul>	<p>7.E.1.3 7.E.1.4 7.E.1.5</p>

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<b>Week 37</b>	Structure and Composition of Earth's Atmosphere	<ul style="list-style-type: none"><li>• Describe the composition of the atmosphere.</li><li>• Compare the layers of Earth's atmosphere.</li><li>• Describe how Earth's atmosphere has changed through Earth's history and how it continues to change.</li><li>• Explain the greenhouse effect and its importance to life on Earth.</li></ul>	7.E.1.1
<b>Week 38</b>	Erosion by Water	<ul style="list-style-type: none"><li>• Explain how running water, groundwater, waves, and glaciers cause erosion and deposition.</li><li>• Describe the formation of erosional and depositional landforms.</li></ul>	7.P.1.2
<b>Week 39</b>	Erosion by Gravity	<ul style="list-style-type: none"><li>• Explain how erosional landforms, such as coastlines, valleys, plains, and sinkholes form from the action of erosion by gravity.</li><li>• Explain the role gravity plays in erosion.</li></ul>	7.P.1.2
<b>Week 40</b>	Science review	Review material learned this year	