

Pacing Guide

Science

Parham

Course: Science		6th Grade Curriculum Mapping		Discovery Education Techbook
ESTIMATED Time Frame/ Date	Content			Essential standards
	Topics Covered	Expectations		
Week 1-2	Scientific inquiry, scientific method, safety, and use of lab tools	Using appropriate technology and tools		6.TT.1.1
Week 3	Introduction to Matter Lesson	<ul style="list-style-type: none">• Explain that atoms are the smallest unit making up an element.• Describe the differences between atoms of different elements.• Describe the difference between a neutral atom and an ion.		6.P.2.1
Week 4	Character properties of Matter	<ul style="list-style-type: none">• Define matter.• Identify the characteristic physical properties of matter.• Identify the characteristic chemical properties of matter.		6.P.2.1
Week 5-6	Changes in State	<ul style="list-style-type: none">• Create a model to demonstrate the movement of atoms in a solid, liquid, and gas, and how they relate to matter as it changes states.• Explain what happens to the motion and energy of molecules as a substance is heated or cooled.• Explain the terms condensation point, boiling point, freezing point, and melting point and how they relate to matter as it changes states.• Explain that energy is lost or gained when a substance changes state.		6.P.2.2

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Week 7	Radiation	<ul style="list-style-type: none">• Explain how heat travels as radiant energy.• Explain the nature of radiant energy.• Model how radiant energy is absorbed by different materials in different ways.	6.P.3.1 6.P.3.3
Week 8	Thermal expansion and contraction	<ul style="list-style-type: none">• Explain heat transfer by conduction.• Relate heat energy to thermal expansion and contraction.• Apply understanding of thermal expansion and contraction to technological design.	6.P.3.1 6.P.3.3
Week 9	Conduction	<ul style="list-style-type: none">• Describe conduction.• Identify and describe conductors and insulators.• Explain the process of thermal equilibrium.• Model conduction in solids.	6.P.3.1
Week 10-11	Heat and Temperature	<ul style="list-style-type: none">• Identify heat as a form of energy that always flows from an object at a higher temperature to an object at a lower temperature.• Understand that adding heat to an object increases the kinetic energy of its molecules.• Explain the three processes by which heat is transferred—radiation, conduction, and convection.• Distinguish between heat and temperature.• Explain how two objects of different mass can have the same temperature but a different amount of thermal energy.	6.P.2.2 6.P.3.1

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Week 12	Convection	<ul style="list-style-type: none">• Explain how increased temperatures of liquids and gases lead to lower densities.• Explain convection in terms of the environment.• Model convection in water.	6.P.3.1
Week 13-14	Light Energy Transmission and Absorption	<ul style="list-style-type: none">• Design an experiment to observe the transmission and absorption of light in a solar oven and sketch and design a solar oven.• Describe how light is transmitted by different materials.• Describe how light is absorbed by different materials.• Describe how the thermal energy of a material is affected by the absorption of light.	6.P.3.2
Week 15	Reflection	<ul style="list-style-type: none">• Design an experiment to test the reflectivity of different materials.• Identify key characteristics of different types of mirrors.• Describe how light reflects off different surfaces.	6.P.3.2
Week 16-17	Color and the Electromagnetic Spectrum	<ul style="list-style-type: none">• Determine where visible light fits into the electromagnetic spectrum.• Design an experiment to investigate the primary colors that make up white light.• Identify the relationship between frequencies and colors.• Explain the different ways light interacts with its environment, including dispersion, reflection, and absorption.	6.P.1.2

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Week 18	Beyond Visibility	<ul style="list-style-type: none">• Identify the different types of electromagnetic waves.• Describe the properties of different electromagnetic waves.• Explain the benefits of using electromagnetic waves to encode and transmit information.	6.P.1.2
Week 19-20	Sound Energy Hearing Process	<ul style="list-style-type: none">• Construct an experiment to model an eardrum.• Identify the parts of the human ear.• Describe the function of each part of the human ear.• Describe how sound waves interact with each part of the ear.	6.P.1.3
Week 21	Volume and Pitch	<ul style="list-style-type: none">• Distinguish between the volume and pitch of sound.• Relate sound volume and pitch to wave properties.• Compare the speed of sound through solids, liquids, and gases.• Relate the speed of sound to the elasticity, density, and temperature of the material through which it propagates.	6.P.1.3
Week 22	Transmission, Reflection and Absorption	<ul style="list-style-type: none">• Describe the nature of sound transmission through various mediums.• Explain what happens when sound is reflected.• Explain what happens when sound is absorbed.• Model sound absorption by different substances.	6.P.1.3

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Week 23	Cellular Respiration	<ul style="list-style-type: none">• Describe the importance of the reactants and products of cellular respiration.• Differentiate respiration (breathing) from cellular respiration.• Explain why cellular respiration is critical for survival.	6.L.1.2
Week 24	Photosynthesis	<ul style="list-style-type: none">• Describe how photosynthesis transfers energy from the sun into ecosystems.• Explain the relationship between photosynthesis and cellular respiration.	6.L.1.2 6.L.2.1
Week 25	Organisms response to the environment	<ul style="list-style-type: none">• Describe how organisms respond to stimuli to maintain balance internally within the organism and externally with the environment.• Explain various ways organisms respond to external environmental stimuli including scarce resources, climate change, conflict, and human expansion.• Explain various ways organisms respond to such internal stimuli as hunger and thirst.	6.L.2.2
Week 26	Plants	<ul style="list-style-type: none">• Describe the structure of a flowering plant.• Explain plant reproductive strategies and how they allow plants to thrive.• Describe the process of photosynthesis.• Describe the relationship between the structure and function of plant parts.	6.L.1.2

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<p>Week 27</p>	<p>Pollution</p>	<ul style="list-style-type: none">• Classify components of an ecosystem as biotic or abiotic.• Explain the causes and effects on the environment of different types of pollution.• Relate the difficulty in tracking the sources and effects of pollution to its causes.• Investigate how runoff from land creates water pollution.• Explain methods that scientists use to monitor pollution in an ecosystem and why this is important.	<p>6.L.2.3</p>
<p>Week 28</p>	<p>Earth's structures Plate Tectonic</p>	<ul style="list-style-type: none">• Describe tectonic plates and explain how they move.• Explain how the movement of tectonic plates causes natural processes.• Explain how the three primary types of plate boundaries cause a variety of landforms.• Explain how the rock cycle and plate tectonics are related.	<p>6.E.2.1 6.E.2.2</p>
<p>Week 29</p>	<p>Structure Based on Composition</p>	<ul style="list-style-type: none">• Compare two ways of describing the interior of Earth.• Identify and distinguish among the layers of Earth's interior.	<p>6.E.2.1</p>
<p>Week 30-31</p>	<p>Space Exploration</p>	<ul style="list-style-type: none">• Explain how humans meet their basic needs when they travel into space.• Explain how humans may use technology to live on other plane	<p>6.E.1.3</p>

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Week 32	Modern Astronomy	<ul style="list-style-type: none">• Explain how reflective and refractive optical telescopes work.• Explain how telescopes aid the study of astronomy.• Distinguish between optical telescopes and telescopes that detect electromagnetic waves other than those visible to humans.	6.E.1.3
Week 33	Future of Space Exploration	<ul style="list-style-type: none">• Identify some of the tools scientists use to study the universe.• Explain how the future of space exploration will be defined by the development of new technologies.	6.E.1.3
Week 34	Rotation, Orbits and Seasons	<ul style="list-style-type: none">• Describe Earth’s motion in space.• Explain the relationship between Earth’s tilt, orbit, and seasons.• Explain why the northern and southern hemispheres experience opposite seasons.	6.E.1.1
Week 35	Eclipses	<ul style="list-style-type: none">• Model and explain what happens during a lunar eclipse.• Model and explain what happens during a solar eclipse.	6.E.1.1
Week 36	Phases	<ul style="list-style-type: none">• Describe the patterns of the appearance of the moon in the sky.• Describe the motion of the moon in space.• Explain the lunar cycle.	6.E.1.1

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Week 37	Tides	<ul style="list-style-type: none">• Explain what tides are• Explain what causes high tide and low tide• Describe the difference between high tide and low tide• Explain the relationship between the sun, moon, and Earth with respect to tides• Describe how Earth's rotation affects tides• Understand that tides are cyclical and therefore predictable• Design a model to investigate tides• Develop a hypothesis• Write an experimental procedure	6.E.1.1
Week 38	Earth	<ul style="list-style-type: none">• Explain why the presence of water on Earth is crucial to Earth's ability to support life.• Explain the unique characteristics of Earth's atmosphere that help support life on Earth.• Identify and describe ways in which Earth is unique in the solar system and the known universe.	6.E.1.1
Week 39	Earth's Soils	<ul style="list-style-type: none">• Explain how soil forms.• Describe the different components that make up soil.• Describe the different soil horizons.	6.E.2.3 6.E.2.4
Week 39	Science Review		
Week 40	Science Review		

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