



Grade 3 Science

PROFILE

Science is a way of knowing and experiencing the natural world. It is a social and intellectual endeavor that provides the foundation for life-long informed decision-making, problem-solving, improved, quality of life and technological advances. Learning science is an active process, and all students should have access to challenging, relevant, exciting, "hands-on," and content-rich science experiences.

THE CURRICULUM

The Pasadena Independent School District offers students a challenging science curriculum that utilizes inquiry and discovery models of instruction which provide opportunities for all students to participate and master science concepts. Students will experience the richness of science through hands-on laboratory and field investigations through inquiry and active experimentation. Emphasized science process skills include: observing, measuring, identifying, classifying, predicting, comparing, inferring, and drawing conclusions. Students will also develop a proficient use of technology through analyzing and collecting data for real world science applications. The science curriculum is based on the Texas Essential Knowledge and Skills curriculum framework.



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EXPECTATIONS

1. Tools of Science

The students will be able to gather, analyze, and interpret information using selected equipment and tools to extend the senses. *Graduated cylinders, beakers, calculators, microscopes, cameras, sound recorders, computers, hand lenses, metric rulers, thermometers, compasses, balances, hot plates, magnets, meter sticks, clocks, timing devices and safety goggles are used in Grade 3 Science.*

2. Vocabulary

The student will build and expand vocabulary, through a print-rich environment, to increase fluency and understanding by incorporating scientific vocabulary into their everyday speaking, listening, and writing routines.

3. Content Integration

The student will read a variety of texts to analyze, review, and critique scientific explanations, hypotheses, and theories as to strengths and weaknesses, and draw inferences on promotional materials. The student will write to inform, describe, and classify using correct scientific vocabulary, scientific concepts, sentence structure, capitalization, punctuation, spelling, usage, and word order. The student will use a scientific journal to record data, thoughts, inspirations, scientific hypotheses, materials, procedures, and results including graphs and diagrams, and conclusions.

4. The student will...

- a. Demonstrate safe practices
- b. Plan and implement descriptive investigations – well-defined questions and formulated hypotheses
- c. Select and use equipment and technology
- d. Collect data through observation and measurement
- e. Demonstrate repeated investigations to increase reliability of results
- f. Analyze and interpret information to construct explanations from direct and indirect evidence
- g. Communicate valid conclusions
- h. Construct graphs, tables, maps, and charts to organize, examine, and evaluate information



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SCIENCE PROCESS SKILLS

Throughout the year, students will master certain required skills. These skills are important to a student's understanding of the nature of science. The Science Process Skills are not designed to be taught in isolation. They are to be embedded in each instructional unit and some should be practiced each time science is taught.

Science Process Skills are the same for every grade level (Grade K – Grade 5). At each grade level, however, the teacher is expected to approach the skill at the level appropriate for their students' age, grade, and cognitive development.

The student will:

1. Demonstrate safe and ethical practice in school, field, and home. **(TEKS 3.1A / TEKS 4.1A / TEKS 5.1A)**
2. Use and dispose of materials wisely, conserve and recycle materials and resources when possible. **(TEKS 3.1B)**
3. Plan and implement descriptive investigations. **(TEKS 3.2A / TEKS 5.2A)**
4. Isolate variables and conduct controlled experiments; repeat experiments to demonstrate that repetition increases reliability of results. **(TEKS 3.4B)**
5. Collect data by observing and measuring. **(TEKS 3.2B / TEKS 5.2B)**
6. Gather, analyze, and interpret information using selected equipment and tools to extend the senses, including graduated cylinders, beakers, calculators, microscopes, cameras, sound recorders, computers, hand lenses, metric rules, thermometers, magnets, balances, meter sticks, compasses, hot plates, clocks, timing devices, and safety goggles. **(TEKS 3.4A / TEKS 5.4A)**
7. Record data through graphic works including simple graphs, tables, maps, charts. **(TEKS 3.2E / TEKS 5.2E)**
8. Draw inferences, in particular with regards to the validity of advertising, and analyze information. **(TEKS 3.3B)**
9. Classify, analyze, and interpret direct and indirect evidence to make and justify decisions and construct reasonable explanations. **(TEKS 3.2E / TEKS 5.2C)**
10. Communicate problems, propose solutions, ask questions, record results, and conclusions in a student's own words. **(TEKS 3.2D / TEKS 5.2D)**
11. Analyze, review, and critique scientific explanations, hypotheses, and theories as to strengths and weaknesses. **(TEKS 3.3A)**
12. Represent the natural world using models and identify their limitations. **(TEKS 3.3C)**
13. Evaluate the impact of research on scientific thought, society, and the environment. **(TEKS 3.3D)**
14. Connect grade level science concepts with the history of science and contributions of scientists. **(TEKS 3.3E / TEKS 4.3E / TEKS 5.3E)**



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FIRST NINE WEEKS VOCABULARY

- **Mastery** words are the concepts that students should have a clear understanding of after instruction.
- **Maintenance** words are the vocabulary words that students should already understand, but may need remediation.
- **Listening/Speaking** words are the words that students should “hear, see, and use” throughout instruction. The use of these words allow for easier transition in subsequent years.

Mastery	Maintenance	Listening/Speaking
conductor	cold	absorption
energy	condensation	angle
force	cool	bacteria
gravity	evaporation	burning
heat	gas	Celsius
insulator	hot	chemical changes
mass	light	compost
matter	liquid	distance
mixture	pull	engineer
motion	push	Fahrenheit
physical changes	shadow	fiber optics
physical property	solid	inclined plane
prism	temperature	inventor
rainbow	warm	lever
reflection		microwave
refraction		miles per hour (mph)
simple machine		Newton
solution		opaque
speed		particles
thermal energy		physicist
thermometer		pounds (lbs)
weight		pulley
work		radiation
		rusting
		screw
		separated
		thermostat
		transfer
		translucent
		transparent
		wedge
		wheel and axle



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FIRST NINE WEEKS BENCHMARK CALENDAR

NOTE: Italicized benchmark targets indicate maintenance and review.

DATE	BENCHMARK TARGETS	INSTRUCTIONAL RESOURCES
Week 1	<p style="text-align: center;">Matter</p> <ol style="list-style-type: none"> 1. Identify matter as solids, liquids, and gases. (TEKS 3.7B) 2. Gather information including temperature, magnetism, hardness, and mass using appropriate tools to identify the physical properties of matter. (TEKS 3.7A) 3. Observe and measure characteristic properties of substances that remain constant such as boiling points and melting points. (TEKS 3.7A / TEKS 5.7D) 	<p><u>Harcourt Science</u> Unit E – Ch. 1 Lesson 1</p> <p>“What is the Temperature?”, <i>Primarily Physics</i>, Pgs. 134-143</p>
Week 2	<p style="text-align: center;">States of Matter</p> <ol style="list-style-type: none"> 4. Identify patterns of change in matter. (TEKS 3.7B / TEKS 4.6A) 5. Classify matter based on physical properties including physical state and the ability to conduct or insulate sound. (TEKS 3.7A / TEKS 5.7A) 	<p><u>Harcourt Science</u> Unit E – Ch. 1 Lessons 2-3</p>
Week 3	<p style="text-align: center;">Changes in Matter</p> <ol style="list-style-type: none"> 6. Identify physical properties of matter. (TEKS 3.7A) 7. Demonstrate that some mixtures maintain the physical properties of their ingredients. (TEKS 3.7A / TEKS 5.7B) 8. Identify changes that can occur in the physical properties of the ingredients of solutions such as the dissolving of sugar in water. (TEKS 3.7A / TEKS 5.7C) 	<p><u>Harcourt Science</u> Unit E – Ch. 2 Lessons 1-2</p>
Week 4	<p style="text-align: center;">Heat Energy</p> <ol style="list-style-type: none"> 9. Identify and demonstrate everyday examples thermal energy. (TEKS 3.11D / TEKS 5.8A) 10. Differentiate between conductors and insulators. (TEKS 3.7A / TEKS 4.7B) 11. Observe and measure boiling points and 	<p><u>Harcourt Science</u> Unit F – Ch. 1 Lessons 1-3</p> <p>“Heat Moves”, <i>Primarily Physics</i>, Pgs. 166-169</p>



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	melting points. (TEKS 3.7A / TEKS 5.7D)	
Week 5	<p style="text-align: center;">Light</p> <p>12. Identify and demonstrate everyday examples of how light is reflected, refracted, and absorbed. (TEKS 3.7A / TEKS 5.8B)</p> <p>13. Describe how rainbows are formed. (TEKS 3.7A / TEKS 5.8B)</p>	<p><u>Harcourt Science</u> Unit F – Ch. 2 Lessons 1-2</p> <p>“Mirrors Reflect”, <i>Primarily Physics</i>, Pgs. 85-88</p>
Week 6	<p style="text-align: center;">Forces and Motion</p> <p>14. Identify that a force is a push or a pull. (TEKS 3.6A)</p> <p>15. Investigate how forces are measured. (TEKS 3.6A)</p> <p>16. Investigate the scientific definition of work. (TEKS 3.6A)</p>	<p><u>Harcourt Science</u> Unit F – Ch. 3 Lessons 1-2</p> <p>“Science On the Slide”, <i>Popping With Power</i>, Pgs. 78-82</p>
Week 7	<p style="text-align: center;">Simple Machines</p> <p>17. Identify how simple machines help us do work. (TEKS 3.5B)</p>	<p><u>Harcourt Science</u> Unit F – Ch. 3 Lesson 3</p>
Week 8	Review/Assessment	



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Mastery	Maintenance	Listening/Speaking
barrier island	air	bedrock
canyon	dinosaurs	cast
clay	mountain	contour plowing
conservation	pollution	creep
core	recycle	delta
crust	rock	erupt
earthquake	sand	fault
erosion	tree	fertilizer
flood	valley	imprint
fossil	water	inexhaustible resource
glacier	wind	Grand Canyon
humus		lava
igneous rock		magma
landforms		mold
loam		mudslide
mantle		nonrenewable resource
metamorphic rock		paleontologist
mineral		renewable resource
plateau		sediment
resource		strip cropping
rock cycle		subsoil
sedimentary rock		tilling
soil		
topsoil		
volcano		
weathering		



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SECOND NINE WEEKS BENCHMARK CALENDAR

NOTE: Italicized benchmark targets indicate maintenance and review.

DATE	BENCHMARK TARGETS	INSTRUCTIONAL RESOURCES
Week 1	<p>Minerals and Rocks</p> <p>17. Identify minerals and how they are used. (TEKS 3.11A)</p> <p>18. Identify rocks and how they are used. (TEKS 3.11A)</p> <p>19. Identify the layers of the Earth. (TEKS 3.6B)</p>	<p><u>Harcourt Science</u> Unit C – Ch. 1 Lesson 1</p> <p>“The Earth Has What We Need”, <i>Primarily Earth</i>, Pgs. 66-73</p>
Week 2	<p>Rock Cycle and Fossils</p> <p>20. Identify the three types of rocks. (TEKS 3.11A)</p> <p>21. Identify the rock cycle. (TEKS 3.11A / TEKS 5.5A)</p> <p>22. Identify fossils and how they are formed. (TEKS 3.11A / TEKS 4.10B)</p>	<p><u>Harcourt Science</u> Unit C – Ch. 1 Lessons 2-3</p>
Week 3	<p>Landforms</p> <p>23. Define and identify the various types of landforms. (TEKS 3.6B)</p> <p>24. Interpret how landforms are the result of a combination of constructive and destructive forces such as weathering, erosion, and glaciers. (TEKS 3.6B / TEKS 5.12A)</p>	<p><u>Harcourt Science</u> Unit C – Ch. 2 Lessons 1-2</p> <p>“The Earth’s Features”, <i>Primarily Earth</i>, Pgs. 1-6</p>
Week 4	<p>Landforms (continued)</p> <p>25. Identify that the surface of the Earth can be changed by forces such as earthquakes, volcanoes, and flood. (TEKS 3.6B)</p>	<p><u>Harcourt Science</u> Unit C – Ch. 2 Lesson 3</p> <p>“Quaking Earth”, <i>Primarily Earth</i>, Pgs. 80-86</p>
Week 5	<p>Soil</p> <p>26. Describe how soil forms. (TEKS 3.11B)</p> <p>27. Identify and record properties of soil such as color and texture, capacity to retain water, and ability to support the growth of plants. (TEKS 3.11B / TEKS 4.11A)</p> <p>28. Identify and describe the importance of soil. (TEKS 3.11A)</p>	<p><u>Harcourt Science</u> Unit C – Ch. 3 Lessons 1-3</p> <p>“Soil Study”, <i>Primarily Earth</i>, Pgs. 56-62</p>
Week 6	<p>Earth’s Resources</p> <p>29. Identify what resources are available</p>	<p><u>Harcourt Science</u> Unit C – Ch. 4 Lesson 1</p>



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	and how we use resources. (TEKS 3.11A)	
Week 7	Types of Resources 30. Identify and classify resources as renewable, inexhaustible, and nonrenewable. (TEKS 3.11A) 31. Describe the importance of conserving resources. (TEKS 3.11A)	<u>Harcourt Science</u> Unit C – Ch. 4 Lessons 2-3
Week 8	Review Concepts	
Week 9	Assessment	



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THIRD NINE WEEKS VOCABULARY

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Mastery	Maintenance	Listening/Speaking
axis	clouds	air mass
atmosphere	gas	air pressure
condensation	hail	anemometer
evaporation	heat	asteroid
fresh water	liquid	astronaut
lunar eclipse	magnetic	atoms
North Pole	rain	balance
orbit	shadow	Big Dipper
phases	sleet	chemist
planet	smell	comet
precipitation	smooth	constellation
rain gauge	solid	estuary
revolution	snow	forecast
rotation	star	front
salt water	water cycle	geologist
solar eclipse	weather	graduated cylinder
solar system	wind	gravity
South Pole		groundwater
telescope		inner planets
temperature		mesosphere
vapor		meteorologist
volume		outer planets
weather map		ozone
		Periodic Table
		scale
		stratosphere
		thermal energy
		thermosphere
		troposphere



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THIRD NINE WEEKS BENCHMARK CALENDAR

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DATE	BENCHMARK TARGETS	INSTRUCTIONAL RESOURCES
Week 1	<p>Water Cycle</p> <p>18. Identify the significance of the water cycle and understand the sun's role in the water cycle. (TEKS 3.11D / TEKS 4.11C)</p> <p>19. Describe some interactions that occur in a simple system such as the water cycle. (TEKS 3.5A / TEKS 5.5B)</p>	<p><u>Harcourt Science</u> Unit D – Ch. 1 Lessons 1-2</p> <p>“A Disappearing Act”, <i>Primarily Earth</i>, Pgs. 102-105</p>
Week 2	<p>Observing Weather</p> <p>20. Identify patterns of change in weather and identify the sun's role in the creation of winds. (TEKS 3.11D / TEKS 4.6A / TEKS 4.11C / TEKS 5.6A)</p>	<p><u>Harcourt Science</u> Unit D – Ch. 2 Lesson 1</p>
Week 3	<p>Measuring Weather</p> <p>21. Describe how weather is measured. (TEKS 3.7A)</p> <p>22. Measure and record the temperature of various objects. (TEKS 3.7A)</p> <p>23. Investigate how to read a weather map. (TEKS 3.7A)</p>	<p><u>Harcourt Science</u> Unit D – Ch. 2 Lesson 2</p>
Week 4	<p>Solar System</p> <p>24. Identify the planets in our solar system and their position in relation to the Sun. (TEKS 3.11C / TEKS 4.6A)</p> <p>25. Describe the characteristics of the Sun. (TEKS 3.11D)</p>	<p><u>Harcourt Science</u> Unit D – Ch. 3 Lesson 1</p> <p>“Lining Up The Planets”, <i>Out of This World</i>, Pgs. 60-64</p>
Week 5	<p>Earth and Moon</p> <p>26. Identify events and describe changes that occur on a regular basis such as seasons and night/day. (TEKS 3.6A / TEKS 5.6A)</p> <p>27. Identify the phases of the moon. (TEKS 3.6A / TEKS 4.6A / TEKS 5.6A)</p>	<p><u>Harcourt Science</u> Unit D – Ch. 3 Lessons 2-3</p> <p>“Facing Up To The Moon”, <i>Out of This World</i>, Pgs. 39-38</p>
Week 6	<p>Beyond the Solar System</p> <p>28. Identify patterns of change in objects in the sky such as stars. (TEKS 3.6A / TEKS 4.6A / TEKS 5.6A)</p>	<p><u>Harcourt Science</u> Unit D – Ch. 3 Lesson 4</p>



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Week 7	Review Earth Science Concepts	
Week 8	Review Physical Science Concepts	
Week 9	Assessment	



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FOURTH NINE WEEKS VOCABULARY

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Mastery	Maintenance	Listening/Speaking
amphibian	beak	adaptation
chlorophyll	bird	canopy
community	cactus	carbon dioxide
consumer	eggs	coastal forest
decomposer	feathers	coniferous forest
desert	fish	conifers
ecosystem	forest	deciduous forest
environment	lakes	energy pyramid
food chain	leaf	evergreens
fresh water	lungs	food webs
germinate	nest	herbivore
gills	ocean	incubate
habitat	oxygen	metamorphosis
inherit	pollen	organism
interact	ponds	skeleton
mammal	rivers	survival
photosynthesis	seed	terrestrial
population	seedling	tropical rain forest
predator	soil	
prey	stem	
producer	streams	
reptile		
root		
salt water		
scales		
trait		



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FOURTH NINE WEEKS BENCHMARK CALENDAR

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DATE	BENCHMARK TARGETS	INSTRUCTIONAL RESOURCES
Week 1	<p>Plants</p> <p>29. <i>Draw and label parts of the plant.</i> (TEKS 2.9A / TEKS 3.9A)</p> <p>30. Observe and identify simple systems such as a sprouted seed. (TEKS 3.5A)</p>	<p><u>Harcourt Science</u> Unit A – Ch. 1 Lessons 1-2</p> <p>“A Plant Begins”, <i>Primarily Plants</i>, Pgs. 18-23</p>
Week 2	<p>Plants (continued)</p> <p>31. Observe, identify, and analyze adaptive characteristics of plants that allow them to survive and reproduce. (TEKS 3.9A, B)</p> <p>32. Identify inherited traits of plants. (TEKS 3.10A, B / TEKS 5.10A)</p>	<p><u>Harcourt Science</u> Unit A – Ch. 1 Lesson 3</p>
Week 3	<p>Animals</p> <p>33. Describe environmental changes in which some animals would thrive, become ill, or perish. (TEKS 3.8C)</p> <p>34. Identify the life cycle of a frog. (TEKS 3.5A)</p> <p>35. Observe, identify, and analyze adaptive characteristics of animals that allow them to survive and reproduce. (TEKS 3.9A, B)</p> <p>36. Identify inherited traits of animals. (TEKS 3.10A, B / TEKS 5.10A)</p>	<p><u>Harcourt Science</u> Unit A – Ch. 2 Lessons 1-3</p> <p>“Wonderful Webbed Feet”, <i>Critters</i>, Pgs. 131-135</p> <p>“Gone Fishing”, <i>Critters</i>, Pgs. 140-144</p> <p>“I’m Stuck On You”, <i>Critters</i> Pgs. 158-165</p>
Week 4	<p>Ecosystems</p> <p>37. Observe and describe the habitats of organisms within an ecosystem. (TEKS 3.8A)</p> <p>38. Observe and identify organisms with similar needs that compete with one another for resources. (TEKS 3.8B)</p>	<p><u>Harcourt Science</u> Unit B – Ch. 1 Lessons 1-4</p> <p>“Biome Boxes”, <i>Critters</i>, Pgs. 203-213</p>
Week 5	<p>Dependence on Living Things</p> <p>39. Describe how living organisms modify their physical environments to meet their needs. (TEKS 3.8D)</p> <p>40. Compare and give examples of the ways</p>	<p><u>Harcourt Science</u> Unit B – Ch. 2 Lesson 1</p>



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	living organisms depend on each other and their environment. (TEKS 2.9B / TEKS 5.9B)	
Week 6	<p style="text-align: center;">Food Chains</p> <p>41. Describe and compare the life cycles of organisms within an ecosystem. (TEKS 3.9A / TEKS 5.6C)</p> <p>42. Identify and describe the significance of the food chain. (TEKS 3.5B)</p>	<p><u>Harcourt Science</u> Unit B – Ch. 2 Lesson 2</p> <p>“Chain Games”, <i>Critters</i>, Pgs. 187-192</p>
Week 7	<p style="text-align: center;">Food Webs</p> <p>43. Identify and describe the significance of the food web. (TEKS 3.5B)</p>	<p><u>Harcourt Science</u> Unit B – Ch. 2 Lesson 3</p>
Week 8	Teacher Choice	
Week 9	Teacher Choice	
Week 10	Teacher Choice	