



Grade 2 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. *Measuring cups and spoons, calculators, microscopes, cameras, sound recorders, computers, hand lenses, metric rulers, thermometers, compasses, balances, magnets, collection nets, meter sticks, clocks, and safety goggles are used in Grade 2 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 gain information and write to inform or persuade using correct sentence structure, capitalization, punctuation, spelling and usage. Students will also draw and label a picture and complete a graph.

4. The student will...

- a. Demonstrate safe practices
- b. Ask questions
- c. Plan and conduct simple, descriptive investigations
- d. Compare results with those of other investigators
- e. Use equipment and tools to extend the senses
- f. Communicate feelings
- g. Give explanations based on information and draw conclusions
- h. Measure and compare using standard and nonstandard units
- i. Make decisions using information
- j. Justify merits of decision
- k. Explain a problem and propose a solution



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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 2.1A / 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 2.1B)**
3. Plan and implement descriptive investigations. **(TEKS 2.2A / 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 2.4A / TEKS 5.2B)**
6. Gather, analyze, and interpret information using selected equipment and tools to extend the senses, including measuring cups and spoons, calculators, microscopes, cameras, sound recorders, computers, hand lenses, metric rules, thermometers, magnets, balances, collection nets, meter sticks, non-standard measuring units, clocks, and safety goggles. **(TEKS 2.2D / TEKS 2.4A, B / TEKS 5.4A)**
7. Record data through graphic works including simple graphs, tables, maps, charts. **(TEKS 2.2E / TEKS 5.2E)**
8. Draw inferences, in particular with regards to the validity of advertising, and analyze information. **(TEKS 2.3A, B / TEKS 3.3B)**
9. Classify, analyze, and interpret information to make and justify decisions and construct reasonable explanations. **(TEKS 2.2E / TEKS 5.2C)**
10. Communicate problems, propose solutions, ask questions, record results, and conclusions in a student's own words. **(TEKS 2.2E, F / TEKS 5.2D)**
11. Analyze, review, and critique scientific explanations, hypotheses, and theories as to strengths and weaknesses. **(TEKS 2.3B / 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
balance	air	amount
boil	alike	audiologist
burning	change	centimeter
cooking	clouds	communicate
force	color	eardrum
freeze	cut	echo
gas	different	evaporate
gravity	ear	flow
irreversible	float	friction
liquid	heavy	icicle
location	high	instrument
loudness	light	length
matter	loud	magnetism
melt	low	mass
mixture	magnet	measure
motion	move	meter stick
music	pull	milliliter
pitch	push	property
reversible	rough	separate
solid	size	sonar
sound	shape	spring scale
vibrate	smooth	temperature
	soft	texture
	voice	throat
	water	vocal cords
	whisper	water vapor
	wind	

*This is not an all-inclusive list of second grade science vocabulary terms.



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FIRST NINE WEEKS BENCHMARK CALENDAR

DATE	BENCHMARK TARGETS	INSTRUCTIONAL RESOURCES
Week 1	<p style="text-align: center;">Forces and Motion</p> <ol style="list-style-type: none"> 1. Recognize a force as something that pushes or pulls on an object to make it move. (TEKS 2.7A) 2. Identify that a force is used to change the location of an object and the direction it is moving in. (TEKS 2.7C) 	<p><u>Harcourt Science</u> Unit F – Ch. 1 Lesson 1</p>
Week 2	<p style="text-align: center;">Measuring Motion</p> <ol style="list-style-type: none"> 3. Recognize that weight, friction, and distance affect the force needed to move objects. (TEKS 2.7A, C) 4. Explain how to measure motion. (TEKS 2.7A, C) 	<p><u>Harcourt Science</u> Unit F – Ch. 1 Lesson 2</p> <p>“Science On The Slide, <i>Popping With Power</i>, Pgs. 78-82</p>
Week 3	<p style="text-align: center;">What is Matter?</p> <p style="text-align: center;">Observing and Measuring Solids</p> <ol style="list-style-type: none"> 5. Identify and describe properties of matter. (TEKS 2.5A) 6. Identify three forms of matter – solids, liquids, and gases. (TEKS 2.5A) 7. Compare solids and describe how they are alike and different. (TEKS 2.7A) 8. Identify two ways to measure solids. (TEKS 2.7A) 	<p><u>Harcourt Science</u> Unit E – Ch. 1 Lessons 1-2</p>
Week 4	<p style="text-align: center;">Observing and Measuring Liquids</p> <ol style="list-style-type: none"> 9. Identify the two properties all liquids have. (TEKS 2.7A) 10. Identify the ways to measure liquids. (TEKS 2.7A) 	<p><u>Harcourt Science</u> Unit E – Ch. 1 Lesson 3</p>
Week 5	<p style="text-align: center;">Observing and Measuring Gases</p> <ol style="list-style-type: none"> 11. Recognize the properties of a gas. (TEKS 2.7A) 12. Identify ways to measure a gas. (TEKS 2.7A) 	<p><u>Harcourt Science</u> Unit E – Ch. 1 Lesson 4</p>
Week 6	<p style="text-align: center;">Changes in Matter</p> <ol style="list-style-type: none"> 13. Observe how cutting, shaping, and 	<p><u>Harcourt Science</u> Unit E – Ch. 2 Lessons 1-3</p>



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	<p>mixing changes matter. (TEKS 2.5A / TEKS 2.7A)</p> <p>14. Describe how water can be made to change from one state to another. (TEKS 2.7A, B)</p> <p>15. Identify some changes in matter that are irreversible and reversible. (TEKS 2.7A)</p>	<p>“Frosty Forms”, <i>Winter Wonders</i>, Pgs. 48-55</p> <p>“Room For Change”, <i>Winter Wonders</i>, Pgs. 56-61</p>
Week 7	<p>What Makes Sound</p> <p>16. Observe and record what makes sound. (TEKS 2.7A)</p> <p>17. Observe how sounds can be different (i.e. loud, soft, high, low). (TEKS 2.7A)</p>	<p><u>Harcourt Science</u> Unit F – Ch. 2 Lessons 1-2</p> <p>“Sound Is Vibration”, <i>Primarily Physics</i>, Pgs. 5-8</p>
Week 8	<p>How Sound Travels</p> <p>18. Investigate how sound travels through gases and solids. (TEKS 2.7A)</p> <p>19. Describe how sound travels through liquids. (TEKS 2.7A)</p> <p>20. Identify how to make different sounds. (TEKS 2.7A)</p>	<p><u>Harcourt Science</u> Unit F – Ch. 2 Lessons 3-4</p> <p>“Traveling Sounds”, <i>Primarily Physics</i>, Pgs. 9-14</p>



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SECOND NINE WEEKS VOCABULARY

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Mastery	Maintenance	Listening/Speaking
boulder	air	amber
crater	animals	Apatosaurus
energy	Autumn (Fall)	astronaut
extinct	day	axis
fossil	dinosaur	Big Dipper
full moon	Earth	Brontosaurus
Jupiter	evaporate	cirrus clouds
Mars	moon	comet
mineral	museum	condensation
moonlight	nest	constellation
Neptune	night	cumulus clouds
new moon	plants	Diplodocus
orbit	rain	gas
Pluto	season	Little Dipper
quarter moon	skin	meteorologist
resource	Spring	Milky Way Galaxy
rock	star	natural resource
rotation	Summer	paleontologist
sand	sun	precipitation
Saturn	teeth	rain gauge
soil	thunderstorm	reconstruct
solar energy	water cycle	scientist
telescope	water vapor	Stegosaurus
temperature	Winter	stratus clouds
thermometer		tar
transportation		tilt
Uranus		Triceratops
Venus		trilobite
water		Tyrannosaurus rex
weather		weather station



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SECOND NINE WEEKS BENCHMARK CALENDAR

DATE	BENCHMARK TARGETS	INSTRUCTIONAL RESOURCES
Week 1	<p>Earth's Resources</p> <p>21. Identify ways that people use rocks and soil. (TEKS 2.10B / TEKS 3.11A)</p> <p>22. Identify ways that people use water. (TEKS 2.10B / TEKS 3.11A)</p>	<u>Harcourt Science</u> Unit C – Ch. 1 Lessons 1-2
Week 2	<p>Earth's Resources (continued)</p> <p>23. Identify other natural resources people use. (TEKS 2.10B / TEKS 3.11A)</p>	<u>Harcourt Science</u> Unit C – Ch. 1 Lesson 3
Week 3	<p>Earth Long Ago</p> <p>24. Identify fossils and how they are formed. (TEKS 2.8A, B / TEKS 4.10B)</p> <p>25. Describe how scientists get fossils. (TEKS 2.8A, B / TEKS 4.10B)</p>	<u>Harcourt Science</u> Unit C – Ch. 2 Lessons 1-2
Week 4	<p>Earth Long Ago (continued)</p> <p>26. Discover what scientists know about dinosaurs. (TEKS 2.9A, B)</p>	<u>Harcourt Science</u> Unit C – Ch. 2 Lesson 3
Week 5	<p>The Sun, the Moon, and Stars</p> <p>27. Identify the sun as the major source of energy. (TEKS 2.7D / TEKS 4.11C)</p> <p>28. Identify Earth's rotation as the cause of night and day. (TEKS 2.7D / TEKS 4.6A / TEKS 5.6A)</p> <p>29. Describe why seasons change. (TEKS 2.7D / TEKS 4.6A / TEKS 5.6A)</p>	<u>Harcourt Science</u> Unit D – Ch. 1 Lessons 1-2
Week 6	<p>The Sun, the Moon, and Stars (continued)</p> <p>30. Identify characteristics of the moon. (TEKS 2.7D / TEKS 4.6A / TEKS 5.6A)</p> <p>31. Illustrate the phases of the moon. (TEKS 2.7D / TEKS 4.6A / TEKS 5.6A)</p>	<u>Harcourt Science</u> Unit D – Ch. 1 Lesson 3
Week 7	<p>Stars and Planets</p> <p>32. Identify the planets in our solar system and their positions in relation to the sun. (TEKS 3.11C)</p>	<u>Harcourt Science</u> Unit D – Ch. 1 Lesson 4
Week 8	<p>Earth's Weather</p>	<u>Harcourt Science</u> Unit D – Ch. 2



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	<p>33. Identify changes in weather. (TEKS 2.7D / TEKS 4.6A / TEKS 5.6A)</p> <p>34. Describe and illustrate the water cycle and understand the Sun's role in the water cycle. (TEKS 2.10A / TEKS 4.11C / TEKS 5.6B)</p> <p>35. Identify how scientists measure weather conditions. (TEKS 2.7D)</p>	<p>Lessons 1-3</p> <p>“Watching the Weather”, <i>Primarily Earth</i>, Pgs. 135-141</p>
Week 9	<p>Earth's Weather (continued)</p> <p>36. Identify how clouds give clues about weather. (TEKS 2.7D)</p>	<p><u>Harcourt Science</u> Unit D – Ch. 2 Lesson 3</p> <p>“Cloudy Weather, <i>Primarily Earth</i>, Pgs. 128-134</p>



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Mastery	Maintenance	Listening/Speaking
adult	animal	amphibian
bones	changing	burrows
chest	crabs	digest
healthy	dolphins	esophagus
heart	food	exercise
lung	growing	Food Guide Pyramid
mammal	insect	hatch
muscles	living	heart rate
reptile	lobsters	large intestine
robin	mouth	learning
shoulder	nonliving	nutrients
skeleton	water	oxygen
stomach	whales	permanent teeth
young		predict
		saliva
		small intestine
		spine



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THIRD NINE WEEKS BENCHMARK CALENDAR

DATE	BENCHMARK TARGETS	INSTRUCTIONAL RESOURCES
Week 1	Living and Nonliving Things 37. Group and compare living organisms and nonliving objects (TEKS 2.8A,B)	<u>Harcourt Science</u> Unit A – Ch. 1 Lesson 1
Week 2	Animals 38. Observe and record the functions of animal parts. (TEKS 2.6D)	<u>Harcourt Science</u> Unit A – Ch. 2 Lesson 1
Week 3	Life Cycles 39. Observe and record stages in the life cycle of a robin. (TEKS 2.8A, B / TEKS 5.6C) 40. Observe and record stages in the life cycle of a cat. (TEKS 2.8A, B / TEKS 5.6C)	<u>Harcourt Science</u> Unit A – Ch. 2 Lesson 2
Week 4	People Grow and Change 41. Identify characteristics and changes of the human body. (TEKS 2.8A / TEKS 5.6C)	<u>Harcourt Science</u> Unit A – Ch. 3 Lesson 1 “Your Fingerprint”, <i>Brown Bag Science</i> , Pgs. 6-7
Week 5	People Grow and Change (continued) 42. Manipulate, predict, and identify parts of the human body that, when put together, can do things that they cannot do by themselves such as skeleton and muscles. (TEKS 2.6B / TEKS 5.5A, B)	<u>Harcourt Science</u> Unit A – Ch. 3 Lesson 2 “Anatomy Quiz”, <i>Brown Bag Science</i> , Pgs. 22-27
Week 6	People Grow and Change (continued) 43. Manipulate, predict, and identify parts of the human body that, when put together, can do things that they cannot do by themselves such as heart and lungs. (TEKS 2.6B / TEKS 5.5A, B)	<u>Harcourt Science</u> Unit A – Ch. 3 Lesson 3 “Your Internal Organs”, <i>Brown Bag Science</i> , Pgs. 8-9
Week 7	People Grow and Change (continued) 44. Manipulate, predict, and identify parts of the human body that, when put together, can do things that they cannot	<u>Harcourt Science</u> Unit A – Ch. 3 Lesson 4



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	do by themselves such as the mouth and stomach. (TEKS 2.6B / TEKS 5.5A, B)	
Week 8	REVIEW CONCEPTS	
Week 9	REVIEW CONCEPTS	



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FOURTH NINE WEEKS VOCABULARY

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Mastery	Maintenance	Listening/Speaking
environment food chain germinate habitat life cycle nutrients pond seedling seed coat	cactus desert fire leaves lightning rain forest roots seed stem trash	archeologist Arctic drought flood freshwater landfill litter minerals naturalist nectar oceanographer pollution recycle reuse saltwater shelter woodland forest



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FOURTH NINE WEEKS BENCHMARK CALENDAR

DATE	BENCHMARK TARGETS	INSTRUCTIONAL RESOURCES
Week 1	<p>Plants</p> <p>45. Observe and record the functions of plant parts. (TEKS 2.6C / TEKS 5.6C)</p>	<p><u>Harcourt Science</u> Unit A – Ch. 1 Lesson 2</p>
Week 2	<p>Plants</p> <p>46. Manipulate, predict, and identify parts that, when separated from the whole, may result in the part or the whole not working, such as plants without leaves. (TEKS 2.6A / TEKS 5.5A, B)</p>	<p><u>Harcourt Science</u> Unit A – Ch. 2 Lesson 3</p> <p>“Which Soil Works Best”, <i>Primarily Plants</i>, Pgs. 88-92</p>
Week 3	<p>Habitats for Animals</p> <p>47. Identify a habitat as a place where an animal lives and grows. (TEKS 2.9A / TEKS 5.9A,C)</p> <p>48. Recognize that different habitats meet the needs of different animals. (TEKS 2.9B)</p>	<p><u>Harcourt Science</u> Unit B – Ch. 1 Lesson 1</p> <p><i>Exploring Environments</i>, Pgs. 8-12</p>
Week 4	<p>Different Land Habitats</p> <p>49. Identify and describe different kinds of land environments and habitats. (TEKS 2.9B)</p> <p>50. Provide examples of the external characteristics of different kinds of animals that allow their needs to be met in land habitats. (TEKS 2.9A / TEKS 5.9A,C)</p>	<p><u>Harcourt Science</u> Unit B – Ch. 1 Lesson 2</p>
Week 5	<p>Different Water Habitats</p> <p>51. Identify and describe different kinds of water environments and habitats. (TEKS 2.9B)</p> <p>52. Provide examples of the external characteristics of different kinds of animals that allow their needs to be met in water habitats. (TEKS 2.9A/ TEKS 5.9A,C)</p>	<p><u>Harcourt Science</u> Unit B – Ch. 1 Lesson 3</p>



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Week 6	<p>Food Chain and Needs of Organisms</p> <p>53. Compare and give examples of the ways living organisms depend on each other. (TEKS 2.9B / TEKS 5.9B)</p> <p>54. Describe how living organisms such as a bird modify their physical environment to meet their needs. (TEKS 3.8D)</p>	<p><u>Harcourt Science</u> Unit B – Ch. 1 Lesson 4</p> <p>“Food Chains”, <i>Critters</i>, Pgs 181-186</p>
Week 7	<p>Changes in Habitats</p> <p>55. Explain how weather can change a habitat. (TEKS 2.7A)</p> <p>56. Describe ways pollution can harm plants and animals. (TEKS 2.7A)</p>	<p><u>Harcourt Science</u> Unit B – Ch. 2 Lessons 1-3</p>
Week 8	Teacher Choice	
Week 9	Teacher Choice	
Week 10	Teacher Choice	