

Proposed Science TEKS

Elementary School (Grades K-5)

OFFICIAL PUBLIC COMMENTS

Summary Listing

<u>Course</u>	<u>Introduction Statements</u>	<u>Total Number of Knowledge/Skills (KS) and Student Expectations (SE)</u>	<u>Number of KS or SE Statements with at Least One Comment</u>
Kindergarten	4	41	10
Grade 1	4	41	14
Grade 2	4	45	18
Grade 3	4	44	16
Grade 4	4	41	22
Grade 5	4	46	19
		258	99

Compiled During February 13 - March 20, 2009

Category	Public Comment	Teacher	Admin.	Parent	Community	Univ. -College	Total
General Elementary	TEKS are precise in providing example for each objective.	1					1
General Elementary	The explicit expectation of investigative time in the curriculum is also helpful and we agree with the percentages used in the revisions.	1					1
General Elementary	Increase the percentage of time spent in classroom and outdoor investigations to 80% in all elementary grades. With the new TEKS revision, the state of Texas is sending a message to elementary science teachers and school districts that classroom and outdoor investigations are less important as students advance through the grade levels. The revised TEKS begin with a recommendation to spend 80% of teaching time on investigations in Kindergarten and 1st grade, but reduce the recommended time to 60% in grades 2 and 3, and then reduce again to 50% in grades 4 and 5. We believe that this is the wrong message and goes against everything that we know about "teaching for understanding."	37	1	2	2		42
General Elementary	In regards to all grade levels the increased specificity is much appreciated.	1					1
General Elementary	The concept of "changes in materials caused by heating and cooling" repeats in K.5 B, 1.5 B, 2.5 B, 3.5 C, and 4.5 B with not enough difference in rigor to warrant so much repeatability.	1					1
General Elementary	Elementary TEKS as written reflect solid, teachable science for the K-5 student.		1				1
General Elementary	The topic "magnets" is in K.6 B, 1.6 B, 2.6 B and 3.6 C. In grade 3 students are expected to observe force of magnetism. In the other grades, little, if any, differentiation.	1					1
General Elementary	The quantity of science equipment greater. Budget concern.	1					1
General Elementary	Deletion of the systems TEKS in all grade levels is a problem.	1					1
General Elementary	Include how old the world is and that reproduction is a basic need of life.	1					1

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General Elementary	TEKS are broad and shallow.	1					1
General Elementary	Need more authentic tasks-e.g., in Gr. 1 3.C: describe what scientists do--students should demonstrate how scientists <u>investigate the natural world.</u>	1					1
General Elementary	I do not agree with recommended percentages of science <u>investigations.</u>	1					1
General Elementary	Keep TAKscope lessons in science.	1					1
General Elementary	Lab and field language, "encouraged" in introduction isn't strong enough to compel instruction. Revise KS as follows: (1) . The student, for at least 80% of instructional time, <u>conducts...</u> "				1		1
General Elementary	Children need to be given environmental education outdoors. Approve of 50% lab and field.	1					1
General Elementary	Revisions are more detailed and to the point. Thank you.	1					1
General Elementary	Need more mention of the solar system and order of <u>planets.</u>	6					6
General Elementary	In the proposed recommendations for K-5 Science, there is no mention of the planets, only the Earth, Moon, and Sun system. When is the solar system going to be introduced to students?	1				1	2
General Elementary	If we all truly follow this very sensible approach to teaching Science, especially with introductions in Kindergarten, followed by integration through the human senses in First Grade; Fifth Grade teachers would simply be reinforcing what many students would have discovered through logical, concrete, expanding exposure.	1					1
General Elementary	I am concerned that the "average" teacher will not be able to easily interpret the TEKS the way they are written. Could they be written in a less "scientific" way?	1					1

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General Elementary	Please specify time in minutes per week that students should spend in science by grade level and have some kind of accountability. (Rationale: In the primary grades science isn't being taught in many districts and the time is given to math and reading due to TAKS testing).	1					1
General Elementary	Gloves not necessary at elementary level.	1					1
General Elementary	Shift order of TEKS so life science follows process skills.	2					2
General Elementary	Include inexhaustible resources.	2					2
General Elementary	Include materials and equipment for sifting to lists of tools.	2					2
General Elementary	Vibrations producing sound is not represented anywhere in elementary TEKS.	1					1
General Elementary	Approve of more on recycling and providing alternative energy.	1					1

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Kindergarten, Beginning with School Year 2010-2011							
Kindergarten - Intro (3)	Replace (3) with: The study of elementary science includes planning and safely implementing classroom and outdoor descriptive investigations using scientific processes, including inquiry methods, analyzing information, making informed decisions, and using tools to collect and record information, while addressing the major concepts and vocabulary, in the context of physical, earth, and life sciences. Scientific investigations are conducted in different ways using different types of scientific research designs. However, all investigations require a well-designed research question or hypothesis, careful observations, data gathering and analysis of the data to identify the patterns that will explain the findings. Descriptive investigations are used to explore new phenomena such as conducting surveys of pond organisms or measuring the abiotic component of a habitat. Descriptive statistics include frequency, mean, median, and mode. No hypothesis and no dependent and independent variables are used in this type of investigation.		12			2	14
Kindergarten Intro (3) - New (4)	Shift numbers to allow time statement to stand alone. (4) Districts are encouraged to facilitate classroom and outdoor investigations for at least 80% of instructional time.		12			2	14
Kindergarten Intro - 4C	Revise "...on a daily basis..." should be changed to "one consistent week of each month" to show patterns in seasonal changes throughout the year.	1					1
Kindergarten Intro - 4C	This needs to include using thermometers and include how the weather feels, not just how it looks in the sky. This would cause more discussion of clothing choices, etc...	1					1
Kindergarten Intro (3)	Edit to read: ...at least 70% of instructional time. (Rationale: allows time for background knowledge development, making connections, vocabulary, and assessments).	1					1

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Kindergarten - 1	Replace KS to read: The student for at least 80% of instructional time, conducts investigations in the classroom and outdoor investigations following home and school safety procedures.	1					1
Kindergarten -1C	Replace SE with: demonstrate how to use and conserve materials such as conserving water and reusing or recycling of paper: (Rationale: align with K, 1 and 2, so not same each year and vocabulary is more appropriate).	266					266
Kindergarten - 2C	Edit SE to include standard units of measurement as well nonstandard, such as inches and centimeters on a ruler.	1					1
Kindergarten - 3B	Replace SE with: make observations of patterns in nature, such as the shapes of leaves; (verb alignment for difficulty from K-1).	266					266
Kindergarten - 3C	Replace SE with: explore what scientists do and how they investigate things in the natural world and use tools to help in their investigations.	2					2
Kindergarten - 4A	Remove "timing devices."	10					10
Kindergarten - 4A	Replace SE with: collect information using tools including computers, hand lenses, nonstandard measuring items, demonstration thermometers, wind sock, primary balances, cups, bowls, magnets, notebooks and safety goggles; (Rationale: cameras, terrariums, and aquariums are too expensive for large districts; give specific weather instrument used; clocks are not taught in math; collection nets are not developmentally appropriate; and we know what nonstandard measuring items are).	266	1				267
Kindergarten - 5A	Replace SE with: observe and record properties of objects, including size (bigger or smaller), mass, (heavier or lighter), shape, color, and texture; (Rationale: relative size and mass are not developmentally correct vocabulary for K).	266	3				269
Kindergarten - 6A	Replace SE with: explore different forms of energy such as light, heat, and sound.		10			2	12
Kindergarten - 6D	Add "such as push or pull."	10					10

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Kindergarten - 7B	Replace SE with: observe and describe properties of water.		11			2	13
Kindergarten - 8C	Replace SE with: observe and describe objects in the sky such as the moon and sun; (Rationale: more developmentally appropriate and aligned with other grade levels).	266					266
Kindergarten - 10	Replace KS with: The student knows that organisms undergo similar life processes and have structures that help them survive within their environments. (same text as Grade 3).	2	9			2	13
Kindergarten - 10C	Delete SE.		9			2	11

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Grade 1, Beginning with School Year 2010-2011							
First - General	These skills are not age appropriate nor do they engage the students in meaningful learning for their age.	1					1
First - Intro (3)	Replace (3) with: The study of elementary science includes planning and safely implementing classroom and outdoor descriptive investigations using scientific processes, including inquiry methods, analyzing information, making informed decisions, and using tools to collect and record information, while addressing the major concepts and vocabulary, in the context of physical, earth, and life sciences. Scientific investigations are conducted in different ways using different types of scientific research designs. However, all investigations require a well-designed research question or hypothesis, careful observations, data gathering and analysis of the data to identify the patterns that will explain the findings. Descriptive investigations are used to explore new phenomena such as conducting surveys of pond organisms or measuring the abiotic component of a habitat. Descriptive statistics include frequency, mean, median, and mode. No hypothesis and no dependent and independent variables are used in this type of investigation.		10			2	12
First Intro (3) - New (4)	Shift numbers to allow time statement to stand alone. (4) Districts are encouraged to facilitate classroom and outdoor investigations for at least 80% of instructional time.		10			2	12
First - 1C	Replace SE with: identify and learn how to use materials including conservation and reuse or recycling of paper and metals; (Rationale: more developmentally appropriate and aligned with other grade levels).	258					258
First - 3A	Question relevancy to all students? (Finding a home for a classroom pet.)	1					1

Category	Public Comment	Teacher	Admin.	Parent	Community	Univ. -College	Total
First - 3C	Replace SE with: demonstrate how scientists investigate the natural world.		10			2	12
First - 4A	Replace TEKS with: collect and record information using tools including computers, hand lenses, non-standard measuring items, thermometers, primary balances, cups and bowls, magnets, notebooks and safety goggles; (Rationale: we know what nonstandard measuring items are; cameras, terrariums and aquariums too expensive; give specific weather instrument used; clocks are not appropriate since time to the minute is not in math TEKS; collecting nets are not developmentally appropriate).	258					258
First - 4A	Awkward to read. The appropriateness of asking 5 year olds to explore with magnets is questionable.	1					1
First - 4A	Remove cameras from list of tools.	258					258
First - 5B	For scientific correctness heating and cooling should read the addition or reduction of heat.	10					10
First - 6A	Replace SE with: explore different forms of energy such as light, heat, and sound.	10					10
First - 6B	Replace SE: "predict and describe" with "observe" (Rationale: grade level alignment of verbs).	258					258
First - 6D	Add "such as a push or pull."	10					10
First - 7A	What will that look like? "gather evidence"....	1					1
First - 8A	Replace SE with: record weather information including temperature such as hot and cold, clear or cloudy, and rainy or icy; (Rationale: more developmentally appropriate in language and concepts).	258					258
First - 8B	The "record changes" part of this SE is not appropriate for 6 year olds in regards to Moon and stars, we should start with clouds.	1					1
First - 8C	Replace SE with: observe and describe objects in the sky such as the Moon and Sun; (Rationale: more developmentally appropriate and aligned with other grade levels.)	258					258
First - 8D	Delete SE (Rationale: not developmentally appropriate.)	258					258

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First - 9	Replace KS with: The student knows that the living environment is composed of relationships between organisms.		10			2	12
First - 9B	Aquariums /terrariums will be very expensive for each and every classroom though ideal .	1					1
First - 9C	Revise SE to read: "...energy transfer through food chains and..." (Rationale: this is not developmentally appropriate).	258					258
First - 9C	Too complex. What will it look like: "gather evidence of interdependence among living organisms"? They can watch a plant die or a snake eat a rat but the concept of energy transfer is too abstract.	1					1
First - 10	Replace KS with: The student knows that organisms undergo similar life processes and have structures that help them survive within their environments. (Rationale: same text as Grade 3).	2	9			2	13
First - 10C	Replace SE with: compare ways that many young animals resemble their parents.		9			2	11
First - 10D	Remove "chickens" from the such as statement. Can be a salmonella issue and teachers get away from teaching the science in order to teach their favorite themes.		1				1

Category	Public Comment	Teacher	Admin.	Parent	Community	Univ. -College	Total
Grade 2, Beginning with School Year 2010-2011							
Second - Intro (a)	Instead of 5 “themes” there are 3 revelations (patterns, changes, and cycles) that occur within 3 disciplines. What about systems? Using the term "system" only in the life science area will lead to teacher misconceptions.	1					1
Second - Intro (3)	Replace (3) with: The study of elementary science includes planning and safely implementing classroom and outdoor descriptive investigations using scientific processes, including inquiry methods, analyzing information, making informed decisions, and using tools to collect and record information, while addressing the major concepts and vocabulary, in the context of physical, earth, and life sciences. Scientific investigations are conducted in different ways using different types of scientific research designs. However, all investigations require a well-designed research question or hypothesis, careful observations, data gathering and analysis of the data to identify the patterns that will explain the findings. Descriptive investigations are used to explore new phenomena such as conducting surveys of pond organisms or measuring the abiotic component of a habitat. Descriptive statistics include frequency, mean, median, and mode. No hypothesis and no dependent and independent variables are used in this type of investigation.		8			2	10

Category	Public Comment	Teacher	Admin.	Parent	Community	Univ. -College	Total
Second - Intro (3)	Revise last sentence to read: Districts are encouraged to facilitate classroom and outdoor investigations for at least 80% of instructional time.	37	1	2	2		42
Second Intro - New 4	Shift numbers to allow time statement to stand alone. (4) Districts are encouraged to facilitate classroom and outdoor investigations for at least 60% of instructional time.		8			2	10
Second - Intro (4)(A)	Edit last sentence to read: "...demonstrate position, frame of reference, and a change in position and motion.		8			2	10
Second - 1	Edit KS to read: The student, for at least 60% of the time, conducts investigations in the classroom...	1					1
Second - 3C	Edit SE to read: (C) identify what a scientist is and explore what different scientists do in connection with Grade 2 science concepts. Rationale: it is important not just to explore what scientists do, but to intentionally connect it with the science the students are learning.	1					1

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Second - 4A	Replace SE with: collect, record, and compare information using tools including cameras, hand lenses, rulers, thermometers, wind vanes, primary balances, plastic beakers, notebooks, and safety goggles; (Rationale: terrariums and aquariums are too expensive; give specific weather instruments used that are aligned; clocks are not taught to minute until third grade; collection nets not developmentally appropriate).	157					157
Second - 5A	Students by 2nd grade are using standard measurement. "Relative" should be removed. Magnetism should be added to the physical properties here. Gas should be added as it is a state of matter and students do know what air is and need to have correct science vocabulary for air.	10					10
Second - 5A	Replace SE with: classify matter by physical properties including shape, mass (heavier or lighter), temperature, texture, flexibility, and whether the material is a solid or liquid; (Rationale: more appropriate to define mass in second grade vocabulary).	260					260
Second - 5B	For Scientific correctness heating and cooling should read the addition or reduction of heat.	10					10
Second - 5D	Delete: "...and justify the selection of those materials based on their physical properties" (Rationale: not developmentally appropriate).	260					260
Second - 6A	Replace SE with: demonstrate that everyday objects can use or produce light, heat, or sound energy.		8			2	10
Second - 6A	SE not developmentally appropriate.	1					1
Second - 6A	Language unclear.	1					1
Second - 6B	Repeats magnets. Scaffolding is appropriate; repeating content is not.		1				1
Second - 6B	Delete SE and add magnetism to 2.5 A.	10					10
Second - 6C	TEKS needs more clarification.	2					2
Second - 6C	Add language as follows: trace the changes in the position relative to a frame of reference of an object....		8			2	10

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Second - 6D	Edit SE to read: compare patterns of movement of objects such as sliding, rolling, spinning, and balancing. (Rationale: Add balancing as part of equilibrium as recommended in the national standards.)	5					5
Second - 7A	Replace SE with: observe and describe rocks by size, texture, and color; (Rationale: align better between grade levels).	260					260
Second - 7A	SE has limited practicality—how will the average 2nd grader really “observe” a boulder to compare it to rocks?	1					1
Second - 7C	Delete SE.	260					260
Second - 8A	Replace SE with: measure, record, and graph weather information including temperature, wind conditions, and cloud cover in order to identify patterns in the data; (Rationale: aligned between grades and matches appropriate math skills).	260					260
Second - 8D	The wording, “observe, describe, and record patterns caused by objects in the sky, including shadows and the appearance of the moon” may lead to the misconception that the phases of the moon are caused by the Earth’s shadow on the moon. Clarify.	1					1
Second - 8D	Vague. Would prefer a more clear explanation of how the shadows should be interpreted as phases of the moon.	10					10
Second - 8D	Replace SE with: observe, describe, and record patterns caused by objects in the sky including the appearance of the moon (Rationale: shadows not developmentally appropriate at second grade).	260					260
Second - 9B	Replace SE with: identify factors in the environment including temperature that affect growth of living things (migration, hibernation and dormancy vocabulary is not developmentally appropriate).	261					261
Second - 10	Replace KS with: The student knows that organisms undergo similar life processes and have structures that help them survive within their environments. (Rationale: same text as Grade 3).		6			2	8

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Second - 10	Section on how organisms resemble parents should remain.		1				1
Second - 10C	Delete: "unique" (Rationale: vocabulary not developmentally appropriate).	260					260

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Grade 3, Beginning with School Year 2010-2011							
Third - Intro	The recurring themes are patterns, relationships, and cycles. There is still no systems (explicitly) mentioned.	1					1
Third - Intro (3)	Replace (3) with: The study of elementary science includes planning and safely implementing classroom and outdoor descriptive investigations using scientific processes, including inquiry methods, analyzing information, making informed decisions, and using tools to collect and record information, while addressing the major concepts and vocabulary, in the context of physical, earth, and life sciences. Scientific investigations are conducted in different ways using different types of scientific research designs. However, all investigations require a well-designed research question or hypothesis, careful observations, data gathering and analysis of the data to identify the patterns that will explain the findings. Descriptive investigations are used to explore new phenomena such as conducting surveys of pond organisms or measuring the abiotic component of a habitat. Descriptive statistics include frequency, mean, median, and mode. No hypothesis and no dependent and independent variables are used in this type of investigation.		9			2	11
Third - Intro (3)	Revise to read: Districts are encouraged to facilitate classroom and outdoor investigations for at least 80% of instructional time.	37	1	2	2		42
Third Intro (3) - New (4)	Shift numbers to allow time statement to stand alone. Create new (4).		9			2	11
Third - 1	Edit KS to read: (1) Scientific investigation and reasoning. The student for at least 60% of instructional time conducts investigations in classrooms and outdoors following school and home safety procedures and environmentally appropriate practices.	1					1
Third - 2A	Insert: "...well-defined questions...."		9			2	11

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Third - 2C	Replace SE with: construct graphic organizers, simple tables, charts, and bar graphs using tools and current technology to organize, examine and evaluate measured data; (Rationale: dropped maps, not aligned with TEKS at 3rd; maps at 4th grade).	253					253
Third - 4A	Replace SE with: collect, record, and analyze information using tools including microscopes, camera, computers, hand lenses, metric rulers, Celsius thermometers, pan balances, graduated cylinders, beakers, spring scales, meter sticks, compasses, timing devices including clocks and stop watches, magnets, collecting nets, notebooks, Sun/Earth/Moon system models; and (Rationale: hot plates not safe for 3rd grade; added spring scales to measure force; sound recorders no longer used, terrariums, and aquariums too expensive).	252					252
Third - 4B	Delete "gloves" (Rationale: not needed since there are no hot plates).	252					252
Third - 5C	For scientific correctness heating and cooling should read the addition or reduction of heat.	10					10
Third - 6A	Vibrations producing sound is not represented anywhere in elementary TEKS.	1					1
Third - 6A	Replace SE with: explore different forms of energy including mechanical, light, sound, and heat/thermal in everyday life.	252					252
Third - 6B	Replace SE with: demonstrate and observe that position and motion can be changed by pushing and pulling objects to show work being done such as pulleys, swings, and wagons; and (Rationale: to fix gaps in force TEKS).	252					252
Third - 6B	Add: "...position relative to frame of reference..."		11			2	13
Third - 6C	Take magnetism out, it is already in 3.5A. Add "push or pull, equilibrium, electricity" as recommended in national standards.	1					1
Third - 7A	Formation of soil by weathered rock and decomposing organic matter is very abstract.	1					1
Third - 8C	Are third graders cognitively ready to comprehend the Earth/Moon/Sun system?	1					1

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Third - 8C	Replace SE with: use models that demonstrate the characteristics and relationship of the planets and the Sun, Earth and Moon system including orbit and position; (Rationale: align astronomy concepts).	252					252
Third - 10	Insert in KS: "organisms resemble their parents" (Rationale: the genetic connection is an important concept).	1					1
Third - 10B	Delete SE (Rationale: not developmentally appropriate).	252					252
Third - 10C	Replace SE with: investigate and compare how animals and plants undergo a series of orderly changes in their diverse life cycles, such as tomato plants, frogs, and lady bugs.	253					253

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Grade 4, Beginning with School Year 2010-2011							
Fourth - Intro (a)	The focus stated in the introductory paragraphs now seems to be earth science with some life science. A new emphasis is placed on the use of models to understand systems which is very helpful.	1					1
Fourth - Intro (1)	Edit (1) to read: Science is a way of describing and making testable predictions about the natural world. Scientific hypotheses are tentative and testable statements that must be capable of being supported or not supported by observational evidence. Hypotheses of durable explanatory power that have been tested over a wide variety of conditions become theories. Scientific theories are based on natural and physical phenomena and capable of being tested by multiple, independent researchers. Students should know that scientific theories, unlike hypotheses, are well-established and highly reliable, but they may still be subject to change as new information and new technologies are developed. This vast body of changing and increasing knowledge is described by physical, mathematical, and conceptual models. Students should know that some questions are outside the realm of science because they deal with phenomena that are not scientifically testable.				1		1

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Fourth - Intro (3)	Replace (3) with: The study of elementary science includes planning and safely implementing classroom and outdoor descriptive investigations using scientific processes, including inquiry methods, analyzing information, making informed decisions, and using tools to collect and record information, while addressing the major concepts and vocabulary, in the context of physical, earth, and life sciences. Scientific investigations are conducted in different ways using different types of scientific research designs. However, all investigations require a well-designed research question or hypothesis, careful observations, data gathering and analysis of the data to identify the patterns that will explain the findings. Descriptive investigations are used to explore new phenomena such as conducting surveys of pond organisms or measuring the abiotic component of a habitat. Descriptive statistics include frequency, mean, median, and mode. No hypothesis and no dependent and independent variables are used in this type of investigation.		9			2	11
Fourth Intro - New (4)	Shift numbers to allow time statement to stand alone. (4) Districts are encouraged to facilitate classroom and outdoor investigations for at least 50% of instructional time.		9			2	11
Fourth - Intro (3)	Revise last sentence to read: Districts are encourage to facilitate classroom and outdoor investigations for at least 80% of instructional time.	37	1	2	2		42

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Fourth - Intro (4)	The original paragraph (A) was deleted and needs to be restored. All other grade levels address the physical, natural, and living environments. Add this new (A) Within the physical environment, students learn to measure physical properties of matter and to compare and contrast a variety of mixtures and solutions. The students explore different forms of energy. The students will design an experiment to test the effect of force on objects. Renumber subsequent paragraphs (B) Within the natural environment... and (C) Within the living environment.	2				2	4
Fourth - Intro (4)A	Delete this sentence from original paragraph (A): The students will design an experiment to test the effect of force on objects.		9			2	11
Fourth - 1	Edit KS to read: (1) Scientific investigation and reasoning. The student, for at least 50% of instructional time, conducts investigations in the classroom...					1	1
Fourth - 2E	"Repeated investigations" is ideal but not well aligned with the math as averaging doesn't occur until middle school.	1					1
Fourth - 3B	Draw inferences and evaluate accuracy of services and product claims found in advertisements and labels, such as for toys, food, and sunscreen. (How can you be accurate with labels? Do you want some type of experiment here?)	10					10
Fourth - 3C	A "stream table" is alarming, however, that in spite of the opening statements focusing the educator on earth and life science, whose TEKS have been increased to include weathering, erosion, deposition, and natural resources, we also see an increase in the physical science TEKS.	1					1

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Fourth - 4A	Replace SE with: collect, record and analyze information using tools, including calculators, microscopes, cameras, computers, hand lenses, metric rulers, Celsius thermometers, mirrors, spring scales, pan balances, triple beam balances, graduated cylinders, beakers, meter sticks, compasses, timing devices (clocks and stop watches), magnets, collecting nets, and notebooks; (Rationale: hot plates are not safe for 4th grade; added in spring scale to measure force; terrariums and aquariums too expensive).	261					261
Fourth - 4B	Delete gloves (Rationale: no need for gloves when there are no hot plates).	261					261
Fourth - 5B	For scientific correctness heating and cooling should read the addition or reduction of heat.	5					5
Fourth - 5C	TEKS are not specific. Add a "such as."	5					5
Fourth - 5C	Mixtures, solutions, insulators, and conductors are all terms that 5th graders struggle with so how ready are 4th graders for these concepts?	1					1
Fourth - 6	Replace KS with: The student knows that energy exists in many forms and can be observed in cycles, patterns, and systems.	2	11			2	15
Fourth - 6A	Replace SE with: explore the uses of energy including light, thermal, electrical, and sound energy.		1				1
Fourth - 6A	Replace SE with: differentiate among forms of energy and how they travel..."	2					2
Fourth - 6A	Differentiate in what ways?	11					11
Fourth - 6A	Replace SE with: differentiate among forms of energy including mechanical, sound, electricity, light, and heat/thermal; (Rationale: add mechanical to align grade levels).	261					261
Fourth - 6C	Replace SE with: investigate the flow of electricity in a circuit.		11			2	13
Fourth - 6D	Delete SE.	1					2
Fourth - 6D	Clarify SE with examples.	2					1
Fourth - 6D	Edit to read: Replace last part with "effect of force on an object."	1					1

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Fourth - 6D	Replace SE with: observe an experiment to test the effect of force on an object such as a push or a pull, gravity, friction, or magnetism; (Rationale: close gaps in force TEKS).	261					261
Fourth - 8A	Why is changes in living organisms in Earth science since it has to do with living organisms adapting?	10					10
Fourth - 8A	Replace SE with: identify seasonal weather patterns that result from changes in air temperature, wind patterns, and precipitation.	1	10			2	13
Fourth - 8A	Replace SE with: measure and record changes in weather and make predictions using weather maps; (Rationale: align with 4.2.C and other grade levels on weather TEKS).	261					261
Fourth - 8B	Replace SE with: explain the role of the sun as a major source of energy for Earth and understand its role in the creation of the wind and in the water cycle; (Rationale: more appropriate wording and concepts for alignment).	261					261
Fourth - 8C	Be specific about what appearance of the moon and about what patterns of change in shadow.	10					10
Fourth - 8C	Delete: phases of moon.	1					1
Fourth - 8C	If "reflection of sunlight" refers to albedo, it is developmentally inappropriate.		1				1
Fourth - 8C	Replace SE with: collect and analyze data to identify sequences and predict patterns of change in the Sun, Earth and Moon including reflection of sunlight, tides, and in the observable appearance of the Moon over time. (Rationale: gaps in concepts and alignments).	261					261
Fourth - 9A	Edit SE to read: investigate that most producers need sunlight, water, and carbon dioxide to make their own food, while consumers are dependent on other organisms for food.		11			2	13
Fourth - 9B-C	Add new SE (C): predict how changes in the ecosystem affect the food web such as a fire in a forest. (Rationale: separated out content in B, to align with other grades).		11			2	13

Category	Public Comment	Teacher	Admin.	Parent	Community	Univ. -College	Total
Fourth - 10	Insert in KS: "organisms resemble their parents" (Rationale: the genetic connection is an important concept).	1	1				2
Fourth - 10A	Edit to align with 3rd and 5th. 4th grade needs to change to be more aligned with 3rd and 5th grade which will help the students learn the structures and functions in a deeper manner.	1					1
Fourth - 10C	Replace SE with: explore, illustrate and compare life cycles in living organisms, such as butterflies, beetles, mealworms, radishes or lima beans. (Rationale: added mealworms with beetles to introduce different life cycles for metamorphosis to align with 5th grade).	261				2	263

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Grade 5, Beginning with School Year 2010-2011							
Fifth - Intro (a)	We now seem to have just three “environments” in which investigations occur.	1					1
Fifth - Intro (1)	Edit to read: (1) Science is a way of describing and making testable predictions about the natural world. Scientific hypotheses are tentative and testable statements that must be capable of being supported or not supported by observational evidence. Hypotheses of durable explanatory power that have been tested over a wide variety of conditions become theories. Scientific theories are based on natural and physical phenomena and capable of being tested by multiple, independent researchers. Students should know that scientific theories, unlike hypotheses, are well-established and highly reliable, but they may still be subject to change as new information and new technologies are developed. This vast body of changing and increasing knowledge is described by physical, mathematical, and conceptual models. Students should know that some questions are outside the realm of science because they deal with phenomena that are not scientifically testable.					1	1

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Fifth - Intro (3)	<p>Edit to read: The study of elementary science includes planning and safely implementing classroom and outdoor descriptive, comparative and simple experimental investigations using scientific processes, including inquiry methods, analyzing information, making informed decisions, and using tools to collect and record information, while addressing the major concepts and vocabulary, in the context of physical, earth, and life sciences. Scientific investigations are conducted in different ways using different types of scientific research designs. However, all investigations require a well-designed research questions or hypothesis, careful observations, data gathering and analysis of the data to identify the patterns that will explain the findings. Descriptive investigations are used to explore new phenomena such as conducting surveys of pond organisms or measuring the abiotic component of a habitat.</p> <p>COMMENT CONTINUES IN CELL BELOW.</p>		13			2	15

Category	Public Comment	Teacher	Admin.	Parent	Community	Univ. -College	Total
	Descriptive statistics include frequency, mean, median, and mode. No hypothesis and no dependent and independent variables are used in this type of investigation. Comparative investigations are used when conditions can be kept constant in order to focus on a single variable. Comparative analysis is used to compare the strength of a relationship between two variables. The investigator selects the independent variable (IV) recording the responses of the dependent (responding) variable (DV). No control group is used for this type of investigation. Conditions other than IV or DV are held constant or at least they are the same for all test groups. Statistics used in the Comparative method include some type of comparison of the means between the various DVs. However, when it is possible to have a control, the Experimental investigations can be used to determine causation. Students in grades 5-12 should experience all three types of investigations and understand that different scientific research questions require different research designs.						
Fifth - Intro (3)	Increase the percentage of time spent in classroom and outdoor investigations to 80% in all elementary grades.	37	1	2	2		42
Fifth Intro (3) - New (4)	Shift numbers to allow time statement to stand alone. (4) Districts are encouraged to facilitate classroom and outdoor investigations for at least 50% of instructional time.		13			2	15
Fifth - 1	Edit KS to read: (1) Scientific investigation and reasoning. The student, for at least 50% of instructional time, conducts investigations in the classroom ...	1					1
Fifth - 2A	Replace SE with: describe, plan and implement descriptive investigations asking well-defined questions, and selecting and using appropriate equipment and technology.	15					15

Category	Public Comment	Teacher	Admin.	Parent	Community	Univ. -College	Total
Fifth - 2B	Replace SE with: (B) describe, plan and implement comparative investigations asking well-defined questions, formulating testable hypotheses, and selecting and using appropriate equipment and technology. and implement simple experimental investigations testing one variable, asking well-defined questions, formulating testable hypotheses and selecting and using appropriate equipment and technology.		13			2	15
Fifth - 2A,B,C	Expand and revise A and B into A, B, and C: (A) describe, plan and implement descriptive investigations asking well-defined questions, and selecting and using appropriate equipment and technology (B) describe, plan and implement comparative investigations asking well-defined questions, formulating testable hypotheses, and selecting and using appropriate equipment and technology (C) describe, plan, and implement simple experimental investigations testing one variable, asking well-defined questions, formulating testable hypotheses and selecting and using appropriate equipment and technology.		14			2	16
Fifth - 2G	Edit to read: "draw conclusions" from simple graphs, tables...	2					2
Fifth - 3C	Edit to Read: "evaluate" models...	1					1
Fifth - 3C	How is that supposed to be taught? That is a ridiculous example.	1					1
Fifth - 3C	Replace SE with: represent the natural world using models and identify their limitations; (Rationale: new is not a good example, old wording is better).	250					250
Fifth - 3C	SE presumes a lot regarding the child's readiness to turn concrete objects into abstract representations and most children this age should not be expected to visualize the mechanisms of technologies they cannot concretely explore.	1					1
Fifth - 3D	Specific scientists should be listed, focusing on classroom study.	1					1

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Fifth - 4A	Replace SE with: collect, record, and analyze information using tools including calculators, microscopes, cameras, computers, hand lenses, metric rulers, Celsius thermometers, prisms, mirrors, pan balances, triple beam balances, spring scales, graduated cylinders, beakers, hot plates, meter sticks, stopwatches, magnets, collecting nets, and notebooks; and (Rationale: added spring scale to measure force; use stop watches in fifth; terrariums and aquariums too expensive).	250					250
Fifth - 6	Edit KS to read: "... energy exists in many forms ..."		12			2	14
Fifth - 6A	Replace SE with: explore energy including mechanical, light, thermal electrical, and sound energy; (Rationale: align with other grade levels).	254					254
Fifth - 6A	Insert: differentiate and explore among...		12			2	14
Fifth - 6C	Replace SE with: demonstrate that light travels in a straight line until it strikes an object and is reflected or travels from one medium to another and it refracted.		12			2	14
Fifth - 6D	Insert new SE: design an experiment that tests the effect of force on an object (Rationale: to close gap in force TEKS).	250					250
Fifth - 8	Edit KS to read: The student knows that there are recognizable patterns in the natural world and the solar system.		12			2	14
Fifth - 8	Make sure to include the planets in the solar system and relation to Sun.	2					2
Fifth - 8A	Topic should be taught at Grade 4.	1					1
Fifth - 8B	Replace SE with: explain how the Sun and the ocean interact in the water cycle and in weather patterns; and (Rationale: aligns with other TEKS and closes gaps).	250					250
Fifth - 8C	Delete ...approximately every 24 hours ...		12			2	14
Fifth - 8C	Replace SE with: demonstrate that the Earth rotates on its axis once approximately every 24 hours causing the day/night cycle and revolves around the Sun every 365 days; and (Rationale: alignment and closes gaps in astronomy).	250					250

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Fifth - 8D (new)	Insert new SE: identify and compare the physical characteristics of the Sun, Earth and Moon; and (Rationale: gaps in astronomy concepts).	251					251
Fifth - 8D (new)	Insert new SE: identify the planets in our solar system and their position in relation to the Sun.		12			2	14
Fifth - 9ABC	Delete from Grade 5 which is overcrowded.	1					1
Fifth - 10	Insert in KS: "organisms resemble their parents" (Rationale: the genetic connection is an important concept).	1					1