

Skills Integration FOR KINDERGARTEN

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2014
Update

Skill Integration Alignment Categories

The Skill Integration documents provide a skill-focused horizontal look at math, science, social studies, ELAR, technology applications, and health. Each of these content areas contains skill-based Student Expectations (SEs) that enable students to acquire, process, and communicate the concepts they learn. Students must be able to connect concepts and apply them in new and novel situations. We see evidence of this in the rigor of our standards, the STAAR assessment program, and in everyday life.

It is difficult, if not impossible, to teach these skills in real and lasting ways if skills are taught separately or inconsistently. Yet, how often do we have time to examine six content areas side-by-side for the connections and similarities among them, as well as opportunities to develop these enormously vital skills?

These documents provide a quick overview of these opportunities. Obviously, all of our state standards, whether they pertain to “content” or “process/skill,” were intended to be applied by the schools and teachers. Our standards are full of skills. These documents do not intend to simply repeat every verb and application already found within the standards. Rather, they intend to highlight those standards focused on broad, yet targeted, skills that impact learning as a whole by grouping skills that engage similar kinds of cognitive activity.

These skills can then serve as the driving force that integrates different content areas, even where content connections are neither direct nor obvious.

The categories themselves formed naturally when we considered what cognitive functions would be employed when engaged in the various listed expectations.

Things to Consider:

- These documents show the SE level of the TEKS only. It is important to remember that teachers should pair SEs with the appropriate Knowledge and Skills Statements when planning and implementing lessons.
- TEKS are listed by content within a given skill category. They are not meant to be aligned horizontally. In other words, the SE of the different content areas across the same rows are not “matched” with what is beside them. The grouping within the category as a whole represents skill sets that engage similar cognitive functions.

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TEKS Information

Every content area has a unique set of Texas Essential Knowledge and Skills (TEKS). However, the TEKS share the same four parts regardless of content area. The number of Strands, separate Knowledge and Skills Statements, and Student Expectations varies by content.

1. Introduction

2. Strand

3. Knowledge and Skills Statement

4. Student Expectations (SE)

Example: Student Expectation (1.8C)

(8)Earth and space.

The student knows that there are recognizable patterns in the natural world and among objects in the sky. The student is expected to:

(C) observe, describe, and illustrate objects in the sky such as the clouds, Moon, and stars, including the Sun.

While there are many different SEs within any given content area, Student Expectations can be categorized in two main ways:

1. Content-based SEs - specific to the content

2. Skill-based SEs - specific content not required; transferable skills applied within different contexts

While skills can be found in application of the content-based standards, this book focuses on those SEs that specifically target transferable skills that can be applied regardless of the content/context.

Example: Content-based SE (2.8E)

(8) Geometry and measurement. The student applies mathematical process standards to analyze attributes of two-dimensional shapes and three-dimensional solids to develop generalizations about their properties. The student is expected to:

(E) decompose two-dimensional shapes such as cutting out a square from a rectangle, dividing a shape in half, or partitioning a rectangle into identical triangles and identify the resulting geometric parts

Example: Skill-based SE (2.1E)

(1) Mathematical process standards. The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to:

(E) create and use representations to organize, record, and communicate mathematical ideas

Below are six Skill Integration categories:

1

Planning, Development, Problem Solving, and Decision Making

Formulating plans, organizing thinking, considering options, solving problems, and making decisions are skills that we utilize daily. Approaching problems systematically, rather than acting impulsively, is an important part of each content area. Although the contexts are different, students employ these skills when organizing their writing, planning an investigation, solving a problem, setting goals, conducting research, and so much more. This first category highlights where Student Expectations call for these important skills so that teachers can purposefully plan how to address the skills as well as ensure that students understand the skills they are learning and why they are so important.

2

Tools and Technology

Every day we use many tools and technologies automatically and without a second thought. These may range from knowing when you need a measuring tape rather than a ruler; using text features to navigate a book or manual; creating a table or graph; understanding the symbols on a variety of maps and other navigation systems; to learning the myriad of things that relate to the digital world. Tools and technology are not separate devices to be used without context. Rather, they are vehicles that aid us in acquiring, processing, and communicating our concepts, tasks, and thoughts as we move toward a particular goal. All six content areas have reasons to utilize the tools of their individual contexts as well as the thinking that occurs when evaluating, selecting, and using them. It is not only about using a specific tool, such as a triple beam balance, but knowing what tools exist, what they do, why you would use them, and which are the best tools for a given job. While technology encompasses more than tools, hardware, and digital environments, it effectively connects concepts and enables students to become more technologically literate.

3

Data Collection and Information Management

All of the content areas require students to collect data of one sort or another. They then have to act on that data (e.g., evaluate validity, analyze content, organize for meaning, represent or communicate results, etc.) using information management skills. The cognitive processes stay the same while the contexts vary. Planning for these skills and telling students that they will continue to use and develop them throughout the day, week, unit, and year enables them to connect the various aspects of their learning.

4

Analysis, Inference, Justification, and Conclusions

It is difficult to explain, teach, and, at times, see evidence of critical thinking. Each skill category relates to critical and creative thinking. However, we tend to rely on analysis, inference, justifications, and conclusions to serve as evidence of deeper comprehension. The cognitive processes involved overlap with and often depend upon those belonging to other skill categories. However, skills alone require some practice so that they become stronger and more broadly applicable over time. These skills are often viewed as evidence of sustained learning and deepen comprehension. This category is one way we need our students to apply these important skills. Analysis is used in planning and problem solving; inference is most often associated with ELAR but is most certainly required in all areas of study; and justification of one's work or thoughts solidifies thinking, creates new questions, and often unearths misconceptions that need to be rectified. While embedded throughout all of the disciplines within the "content" TEKS and paired with content-specific concepts and examples, these skills also exist within their own separate skill-based Student Expectations. This category groups those skill-based SEs to highlight their importance and cross-curricular applications. By understanding that these can serve as connecting points for students, we can learn to effectively weave these skills throughout learning experiences over time and across content.

5

Communication

Communication is integral to learning and functioning on a day-to-day basis. It also involves more than simply speaking and listening. Creating, representing, modeling, writing, explaining, demonstrating, publishing, describing, and a whole host of other methods of sharing constitute communication. Skills that enable students to decide what to share and how to share in an effective and efficient manner can be found in all six content areas. This skill category is well represented among what we call the "content" SEs, but it is also highlighted in one or more separate SEs in each of the main elementary content areas.

6

Making Connections

Surveying the content areas for opportunities to make connections between concepts, whether because the SEs are similar or simply provide a great opportunity for learning, should be a regular part of lesson planning. Sometimes those connections will crop up among the skills found within these categories or in the content SEs themselves. However, SEs with inbuilt connection skills also exist within the elementary curriculum's six major areas of study. We need to capitalize and take advantage of the language in these SEs to make connections beyond them. Identifying relationships both within a content area and across disciplines deepens student comprehension and provides real-world relevance.

KINDERGARTEN PLANNING, DEVELOPMENT, PROBLEM SOLVING, and DECISION MAKING

MATH		SCIENCE		SOCIAL STUDIES		ELAR		TECHNOLOGY APPLICATIONS		HEALTH	
1A	apply mathematics to problems arising in everyday life, society, and the workplace	2B	plan and conduct simple descriptive investigations such as ways objects move	16A	use a problem-solving process to identify a problem, gather information, list and consider options, consider advantages and disadvantages, choose and implement a solution, and evaluate the effectiveness of the solution	13A	plan a first draft by generating ideas for writing through class discussion	1A	apply prior knowledge to develop new ideas, products, and processes	3A	demonstrate how to seek the help of parents / guardians and other trusted adults in making decisions and solving problems
1B	use a problem-solving model that incorporates analyzing given information, formulating a plan or strategy, determining a solution, justifying the solution, and evaluating the problem-solving process and the reasonableness of the solution	3A	identify and explain a problem such as the impact of littering on the playground and propose a solution in his / her own words	16B	use a decision-making process to identify a situation that requires a decision, gather information, generate options, predict outcomes, take action to implement a decision, and reflect on the effectiveness of the decision	19	ask open-ended research questions and develop a plan for answering them	1D	create and execute steps to accomplish a task		
1C	select tools, including real objects, manipulatives, paper and pencil, and technology as appropriate, and techniques, including mental math, estimation, and number sense as appropriate, to solve problems							1E	evaluate and modify steps to accomplish a task		
								4A	identify what is known and unknown and what needs to be known regarding a problem and explain the steps to solve the problem		

KINDERGARTEN TOOLS and TECHNOLOGY

MATH		SCIENCE		SOCIAL STUDIES		ELAR		TECHNOLOGY APPLICATIONS		HEALTH	
1C	select tools, including real objects, manipulatives, paper and pencil, and technology as appropriate, and techniques, including mental math, estimation, and number sense as appropriate, to solve problems	1A	identify and demonstrate safe practices as described in the Texas Safety Standards during classroom and outdoor investigations, including wearing safety goggles, washing hands, and using materials appropriately	4C	identify tools that aid in determining location, including maps and globes	1F	hold a book right side up, turn its pages correctly, and know that reading moves from top to bottom and left to right	1B	create original products using a variety of resources	2A	identify the purpose of protective equipment such as a seat belt and a bicycle helmet
1D	communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate	1B	discuss the importance of safe practices to keep self and others safe and healthy	13A	identify examples of technology used in the home and school	1G	identify different parts of a book (e.g., front and back covers, title page)	1C	explore virtual environments, simulations, models, and programming languages to enhance learning		
1E	create and use representations to organize, record, and communicate mathematical ideas	1C	demonstrate how to use, conserve, and dispose of natural resources and materials such as conserving water and reusing or recycling paper, plastic, and metal	13B	describe how technology helps accomplish specific tasks and meet people’s needs	4A	predict what might happen next in text based on the cover, title, and illustrations	2A	use communication tools that allow for anytime, anywhere access to interact, collaborate, or publish with peers locally and globally		
8B	use data to create real-object and picture graphs	2C	collect data and make observations using simple equipment such as hand lenses, primary balances, and non-standard measurement tools	13C	describe how his or her life might be different without modern technology	5D	use a picture dictionary to find words	2C	format digital information, including font attributes, color, white space, graphics, and animation, for a defined audience and communication medium		
8C	draw conclusions from real-object and picture graphs	4A	collect information using tools, including computers, hand lenses, primary balances, cups, bowls, magnets, collecting nets, and notebooks; timing devices, including clocks and timers; non-standard measuring items such as paper clips and clothespins; weather instruments such as demonstration thermometers and wind socks; and materials to support observations of habitats of organisms such as terrariums and aquariums	15B	create and interpret visuals, including pictures and maps	10D	use titles and illustrations to make predictions about text	2D	select, store, and deliver products using a variety of media, formats, devices, and virtual environments		
		4B	use senses as a tool of observation to identify properties and patterns of organisms, objects, and events in the environment			11A	follow pictorial directions (e.g., recipes, science experiments)	4B	evaluate the appropriateness of a digital tool to achieve the desired product		
						11B	identify the meaning of specific signs (e.g., traffic signs, warning signs)	4D	collect, analyze, and represent data using tools such as word processing, spreadsheets, graphic organizers, charts, multimedia, simulations, models, and programming languages		
						19B	decide what sources or people in the classroom, school, library, or home can answer these questions	6A	use appropriate terminology regarding basic hardware, software applications, programs, networking, virtual environments, and emerging technologies		
						20B	use pictures in conjunction with writing when documenting research	6B	use appropriate digital tools and resources for storage, access, file management, collaboration, and designing solutions to problems		
								6D	use a variety of input, output, and storage devices		
								6G	use the help feature online and in applications		

Skills Integration FOR GRADE 1

1



FIRST GRADE PLANNING, DEVELOPMENT, PROBLEM SOLVING, and DECISION MAKING

MATH	SCIENCE	SOCIAL STUDIES	ELAR	TECHNOLOGY APPLICATIONS	HEALTH
1A apply mathematics to problems arising in everyday life, society, and the workplace	2B plan and conduct simple descriptive investigations such as ways objects move	19A use a problem-solving process to identify a problem, gather information, list and consider options, consider advantages and disadvantages, choose and implement a solution, and evaluate the effectiveness of the solution	17A plan a first draft by generating ideas for writing (e.g., drawing, sharing ideas, listing key ideas)	1A apply prior knowledge to develop new ideas, products, and processes	3A explain ways to seek the help of parents/guardians and other trusted adults in making decisions and solving problems
1B use a problem-solving model that incorporates analyzing given information, formulating a plan or strategy, determining a solution, justifying the solution, and evaluating the problem-solving process and the reasonableness of the solution	3A identify and explain a problem such as finding a home for a classroom pet and propose a solution in his/her own words	19B use a decision-making process to identify a situation that requires a decision, gather information, generate options, predict outcomes, take action to implement a decision, and reflect on the effectiveness of that decision	23 ask open-ended research questions and develop a plan for answering them	1D create and execute steps to accomplish a task	3B describe how decisions can be reached and problems can be solved
1C select tools, including real objects, manipulatives, paper and pencil, and technology as appropriate, and techniques, including mental math, estimation, and number sense as appropriate, to solve problems			23A generate a list of topics of class-wide interest and formulate open-ended questions about one or two of the topics	1E evaluate and modify steps to accomplish a task	3C explain the importance of goal setting and task completion
				4A identify what is known and unknown and what needs to be known regarding a problem and explain the steps to solve the problem	

Sample

FIRST GRADE TOOLS and TECHNOLOGY

MATH		SCIENCE		SOCIAL STUDIES		ELAR		TECHNOLOGY APPLICATIONS		HEALTH					
1C	select tools, including real objects, manipulatives, paper and pencil, and technology as appropriate, and techniques, including mental math, estimation, and number sense as appropriate, to solve problems	1A	recognize and demonstrate safe practices as described in the Texas Safety Standards during classroom and outdoor investigations, including wearing safety goggles, washing hands, and using materials appropriately	3C	create a calendar and simple timeline	1F	identify the information that different parts of a book provide (e.g., title, author, illustrator, table of contents)	1B	create original products using a variety of resources	2A	identify and use protective equipment to prevent injury				
1D	communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate	1B	recognize the importance of safe practices to keep self and others safe and healthy	5A	create and use simple maps such as maps of the home, classroom, school, and community	14D	use text features (e.g., title, tables of contents, illustrations) to locate specific information in text	1C	explore virtual environments, simulations, models, and programming languages to enhance learning						
1E	create and use representations to organize, record, and communicate mathematical ideas	1C	identify and learn how to use natural resources and materials, including conservation and reuse or recycling of paper, plastic, and metals	16A	describe how technology changes the ways families live	15B	explain the meaning of specific signs and symbols (e.g., map features)	2A	use communication tools that allow for anytime anywhere access to interact, collaborate, or publish with peers locally and globally						
7A	use measuring tools to measure the length of objects to reinforce the continuos nature of linear measurement	2C	collect data and make observations using simple equipment such as hand lenses, primary balances, and non-standard measurement tools	16B	describe how technology changes communication, transportation, and recreation	22E	use resources to find correct spellings	2C	format digital information, including font attributes, color, white space, graphics, and animation, for a defined audience and communication medium						
7E	tell time to the hour and half hour using analog and digital clocks	4A	collect, record, and compare information using tools, including computers, hand lenses, primary balances, cups, bowls, magnets, collecting nets, notebooks, and safety goggles; timing devices, including clocks and timers; non-standard measuring items such as paper clips and clothespins; weather instruments such as classroom demonstration thermometers and wind socks; and materials to support observations of habitats of organisms such as aquariums and terrariums	16C	describe how technology changes the way people work	24B	use text features (e.g., table of contents, alphabetized index) in age-appropriate reference works (e.g., picture dictionaries) to locate information	2D	select, store, and deliver products using a variety of media, formats, devices, and virtual environments						
8A	collect, sort, and organize data in up to three categories using models/representations such as tally marks or T-charts	4B	measure and compare organisms and objects using non-standard units					4B	evaluate the appropriateness of a digital tool to achieve the desired product						
8C	draw conclusions and generate and answer questions using information from picture and bar-type graphs														
								4D	collect, analyze, and represent data using tools such as word processing, spreadsheets, graphic organizers, charts, multimedia, simulations, models, and programming languages						
								6A	use appropriate terminology regarding basic hardware, software applications, programs, networking, virtual environments, and emerging technologies						
								6B	use appropriate digital tools and resources for storage, access, file management, collaboration, and designing solutions to problems						
		6D	use a variety of input, output, and storage devices												
		6G	use the help feature online and in applications												

Sample

Skills Integration FOR GRADE 2

2



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Update

SECOND GRADE PLANNING, DEVELOPMENT, PROBLEM SOLVING, and DECISION MAKING

MATH	SCIENCE	SOCIAL STUDIES	ELAR	TECHNOLOGY APPLICATIONS	HEALTH
1A apply mathematics to problems arising in everyday life, society, and the workplace	2B plan and conduct descriptive investigations such as how organisms grow	20A use a problem-solving process to identify a problem, gather information, list and consider options, consider advantages and disadvantages, choose and implement a solution, and evaluate the effectiveness of the solution	17A plan a first draft by generating ideas for writing (e.g., drawing, sharing ideas, listing key ideas)	1A apply prior knowledge to develop new ideas, products, and processes	11A explain steps in the decision-making process and the importance of following the steps
1B use a problem-solving model that incorporates analyzing given information, formulating a plan or strategy, determining a solution, justifying the solution, and evaluating the problem-solving process and the reasonableness of the solution	3A identify and explain a problem in his/her own words and propose a task and solution for the problem such as lack of water in a habitat	20B use a decision-making process to identify a situation that requires a decision, gather information, generate options, predict outcomes, take action to implement a decision, and reflect on the effectiveness of that decision	24 ask open-ended research questions and develop a plan for answering them	1D create and execute steps to accomplish a task	11B describe how personal-health decisions affect self and others
1C select tools, including real objects, manipulatives, paper and pencil, and technology as appropriate, and techniques, including mental math, estimation, and number sense as appropriate, to solve problems			24A generate a list of topics of class-wide interest and formulate open-ended questions about one or two of the topics	1E evaluate and modify steps to accomplish a task	11C list the steps and describe the importance of task completion and goal setting
				4A identify what is known and unknown and what needs to be known regarding a problem and explain the steps to solve the problem	11D explain why obtaining help, especially from parents/trusted adults, can be helpful when making decisions about personal health

SECOND GRADE TOOLS and TECHNOLOGY

MATH	SCIENCE	SOCIAL STUDIES	ELAR	TECHNOLOGY APPLICATIONS	HEALTH
1C select tools, including real objects, manipulatives, paper and pencil, and technology as appropriate, and techniques, including mental math, estimation, and number sense as appropriate, to solve problems	1A identify and demonstrate safe practices as described in the Texas Safety Standards during classroom and outdoor investigations, including wearing safety goggles, washing hands, and using materials appropriately	3A identify several sources of information about a given period or event such as reference materials, biographies, newspapers, and electronic sources	3A use ideas (e.g., illustrations, titles, topic sentences, key words, and foreshadowing) to make and confirm predictions	1B create original products using a variety of resources	2.2C explain the need to use protective equipment when engaging in certain recreational activities such as skateboarding, rollerblading, cycling, and swimming
1D communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate	1B describe the importance of safe practices	3B describe various evidence of the same time period using primary sources such as photographs, journals, and interviews	14D use text features (e.g., table of contents, index, headings) to locate specific information in text	1C explore virtual environments, simulations, models, and programming languages to enhance learning	
1E create and use representations to organize, record, and communicate mathematical ideas	1C identify and demonstrate how to use, conserve, and dispose of natural resources and materials such as conserving water and reuse or recycling of paper, plastic, and metal	5A interpret information on maps and globes using basic map elements such as title, orientation (north, south, east, west), and legend/map keys	15B use common graphic features to assist in the interpretation of text (e.g., captions, illustrations)	2A use communication tools that allow for anytime anywhere access to interact, collaborate, or publish with peers locally and globally	
9A find the length of objects using concrete models for standard units of length	2C collect data from observations using simple equipment such as hand lenses, primary balances, thermometers, and non-standard measurement tools	5B create maps to show places and routes within the home, school, and community	24B decide what sources of information might be relevant to answer these questions	2C format digital information, including font attributes, color, white space, graphics, and animation, for a defined audience and communication medium	
9D determine the length of an object to the nearest marked unit using rulers, yardsticks, meter sticks, or measuring tapes	4A collect, record, and compare information using tools, including computers, hand lenses, rulers, primary balances, plastic beakers, magnets, collecting nets, notebooks, and safety goggles; timing devices, including clocks and stopwatches; weather instruments such as thermometers, wind vanes, and rain gauges; and materials to support observations of habitats of organisms such as terrariums and aquariums	17A describe how science and technology change communication, transportation, and recreation	25B use text features (e.g., table of contents, alphabetized index, headings) in age-appropriate reference works (e.g., picture dictionaries) to locate information	2D select, store, and deliver products using a variety of media, formats, devices, and virtual environments	
9G read and write time to the nearest one-minute increment using analog and digital locks and distinguish between a.m. and p.m.	4B measure and compare organisms and objects using non-standard units that approximate metric units	17B explain how science and technology change the ways in which people meet basic needs		4B evaluate the appropriateness of a digital tool to achieve the desired product	
10A explain that the length of a bar in a bar graph or the number of pictures in a pictograph represents the number of data points for a given category		18C use various parts of a source, including the table of contents, glossary, and index, as well as keyword Internet searches to locate information		4D collect, analyze, and represent data using tools such as word processing, spreadsheets, graphic organizers, charts, multimedia, simulations, models, and programming languages	
10B organize a collection of data with up to four categories using pictographs and bar graphs with intervals of one or more		19B create written and visual material such as stories, poems, maps, and graphic organizers to express ideas		6A use appropriate terminology regarding basic hardware, software applications, programs, networking, virtual environments, and emerging technologies	
10D draw conclusions and make predictions from information in a graph				6B use appropriate digital tools and resources for storage, access, file management, collaboration, and designing solutions to problems	
				6D use a variety of input, output, and storage devices	
				6G use the help feature online and in applications	