

Skills Integration FOR GRADE 3

3



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.

THIRD 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	2A plan and implement descriptive investigations, including asking and answering questions, making inferences, and selecting and using equipment or technology needed, to solve a specific problem in the natural world	19A use 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 selecting a genre appropriate for conveying the intended meaning to an audience and generating ideas through a range of strategies (e.g., brainstorming, graphic organizers, logs, journals)	1B analyze trends and forecast possibilities, developing steps for the creation of an innovative process or product	9B demonstrate strategies for resolving conflicts
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		19B use a decision-making process to identify a situation that requires a decision, gather information, identify options, predict consequences, and take action to implement a decision	25A generate research topics from personal interests or by brainstorming with others, narrow to one topic, and formulate open-ended questions about the major research topic	2A draft, edit, and publish products in different media individually and collaboratively	11C explain the positive and negative consequences of making a health-related choice
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			25B generate a research plan for gathering relevant information (e.g., surveys, interviews, encyclopedias) about the major research question	4A identify information regarding a problem and explain the steps toward the solution	11D explain the importance of seeking assistance in making decision about health
			26A follow the research plan to collect information from multiple sources of information, both oral and written, including: (i) (ii)(iii)	4B collect, analyze, and represent data to solve problems using tools such as word processing, databases, spreadsheets, graphic organizers, charts, multimedia, simulations, models, and programming languages	11F describe goal-setting skills
			26B use skimming and scanning techniques to identify data by looking at text features (e.g., bold print, captions, key words, italics)	4D evaluate technology tools applicable for solving problems	11G explain the importance of time passage with respect to a goal
				6D troubleshoot minor technical problems with hardware and software using available resources such as online help and knowledge bases	

THIRD 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 demonstrate safe practices as described in the Texas Safety Standards during classroom and outdoor investigations, including observing a schoolyard habitat	3B create and interpret timelines	2A use ideas (e.g., illustrations, titles, topic sentences, key words, and foreshadowing clues) to make and confirm predictions	1A create original products using a variety of resources	7B identify ways in which health care has improved as a result of technology
1D communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate	1B make informed choices in the use and conservation of natural resources by recycling or reusing materials such as paper, aluminum cans, and plastics	5B use a scale to determine the distance between places on maps and globes	4E alphabetize a series of words to the third letter and use a dictionary or a glossary to determine the meanings, syllabication, and pronunciation of unknown words	1C use virtual environments to explore systems and issues	
1E create and use representations to organize, record, and communicate mathematical ideas	2A plan and implement descriptive investigations, including asking and answering questions, making inferences, and selecting and using equipment or technology needed, to solve a specific problem in the natural world	5C identify and use the compass rose, grid system, and symbols to locate places on maps and globes	13D use text features (e.g., bold print, captions, key words, italics) to locate information and make and verify predictions about contents of texts	2B use font attributes, color, white space, and graphics to ensure that products are appropriate for multiple communication media, including monitor display, web, and print	
7C determine the solutions to problems involving addition and subtraction of time intervals in minutes using pictorial models or tools such as a 15-minute event plus a 30-minute event equals 45 minutes	2B collect data by observing and measuring using the metric system and recognize differences between observed and measured data	16A identify scientists and inventors, including Jonas Salk, Maria Mitchell, and others who have discovered scientific breakthroughs or created or invented new technology such as Cyrus McCormick, Bill Gates, and Louis Pasteur	15A follow and explain a set of written multi-step directions	2D select and use appropriate collaboration tools	
7E determine liquid volume (capacity) or weight using appropriate units and tools	2C construct maps, graphic organizers, simple tables, charts, and bar graphs using tools and current technology to organize, examine, and evaluate measured data	16B identify the impact of scientific breakthroughs and new technology in computers, pasteurization, and medical vaccines on various communities	15B locate and use specific information in graphic features of text	2F perform basic software application functions, including opening applications and creating, modifying, printing, and saving files	
8A summarize a data set with multiple categories using a frequency table, dot plot, pictograph, or bar graph with scaled intervals	3C represent the natural world using models such as volcanoes or Sun, Earth, and Moon system and identify their limitations, including size, properties, and materials	17A research information, including historical and current events, and geographic data, about the community and world, using a variety of valid print, oral, visual, and Internet resources	22 understand the function of and use the conventions of academic language when speaking and writing	4B collect, analyze, and represent data to solve problems using tools such as word processing, databases, spreadsheets, graphic organizers, charts, multimedia, simulations, models, and programming languages	