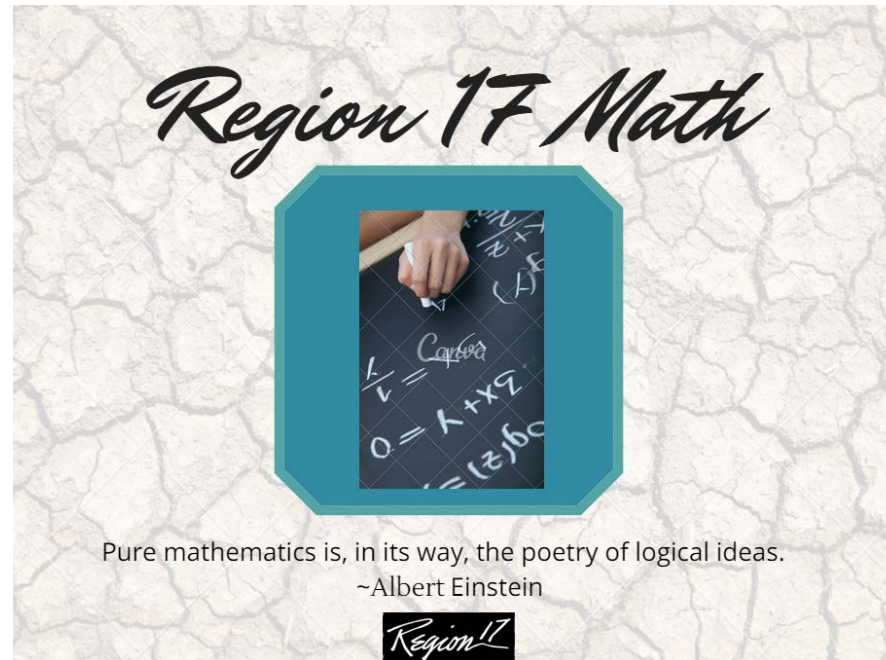


# “Leading” the New Math TEKS

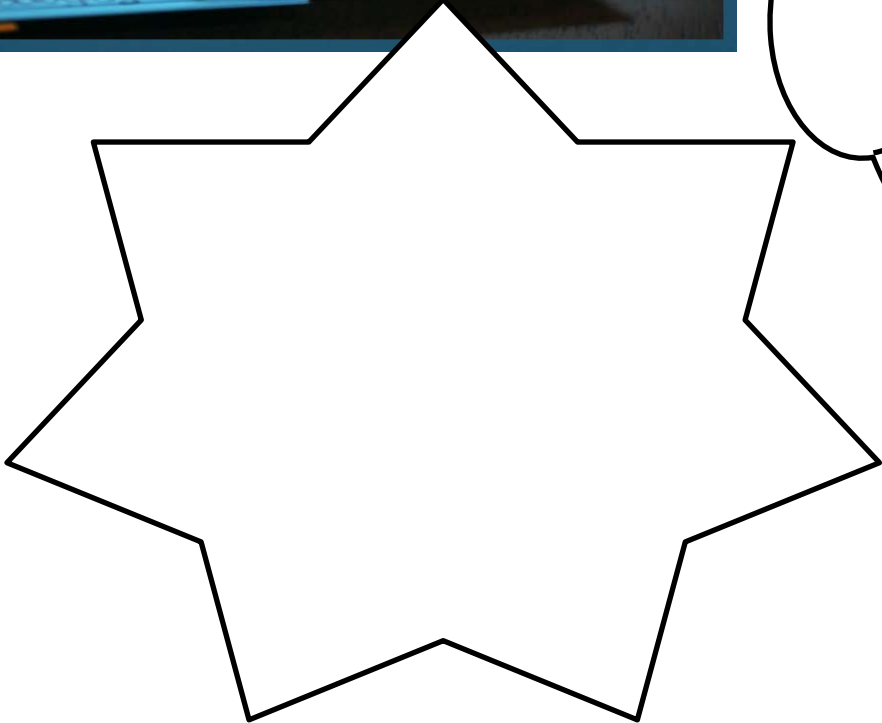
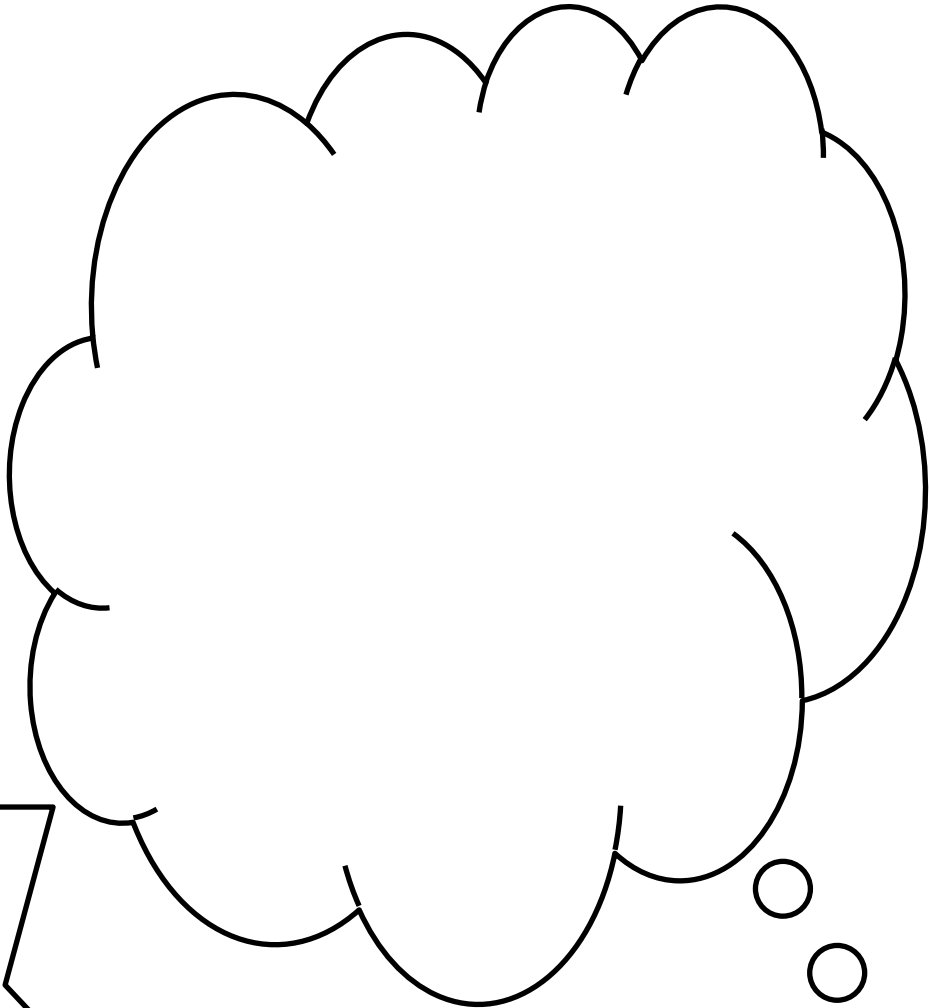



## Talking Points:

- New Reporting Categories
- Process Standards
- Financial Literacy
- Cognitive Change
- Moving TEKS
- Resources to Study
- Curriculum vs. Resources
- What You Should See and Hear
- What Teachers Need

1. Numerical Representations and Relationships
2. Computations and Algebraic Relationships
3. Geometry and Measurement
4. Data Analysis and Personal Financial Literacy

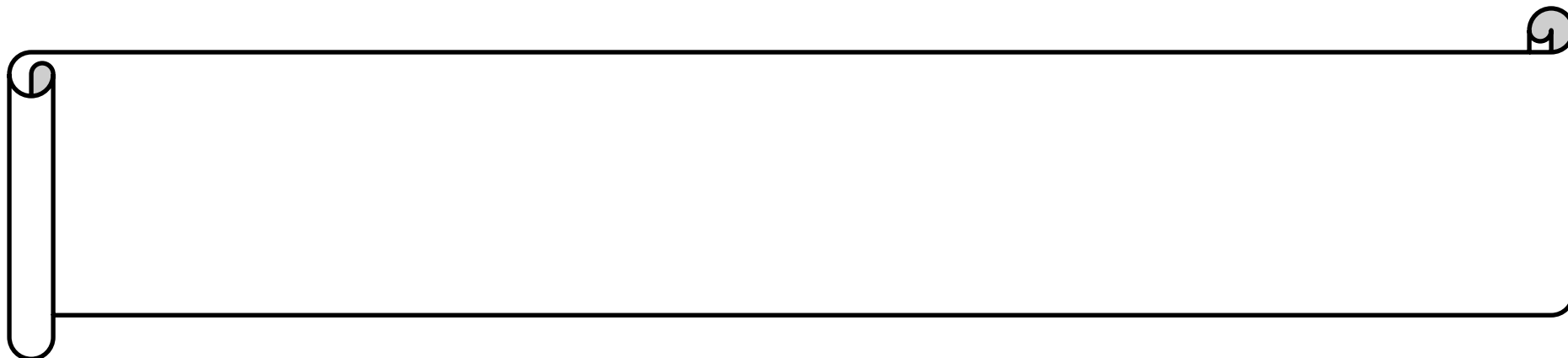
**New Reporting Categories**  
**K - 8**



# What are the K-8 Process Standards?

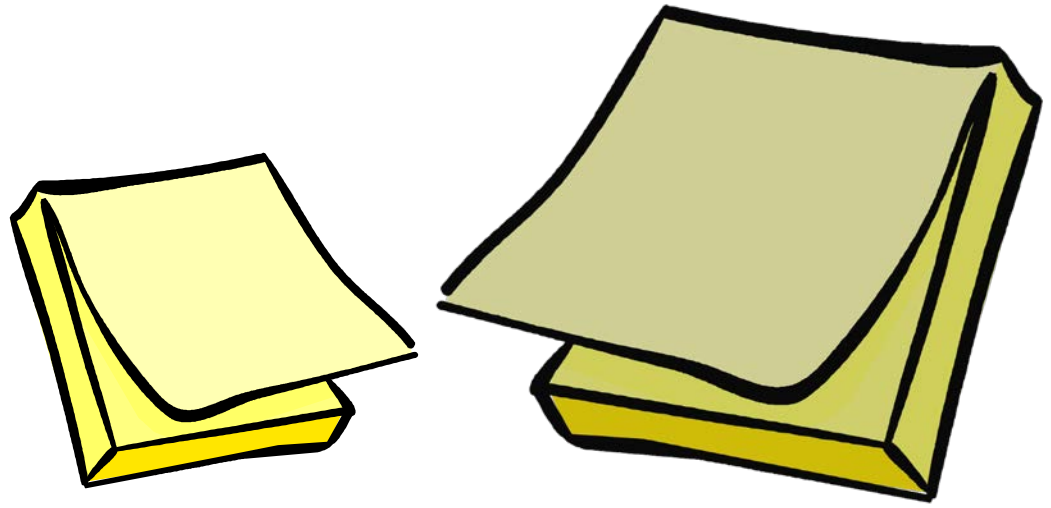
(1) Mathematical process standards. The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to:



- (A) apply mathematics to problems arising in everyday life, society, and the workplace;
- (B) 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;
- (C) 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;
- (D) communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate;
- (E) create and use representations to organize, record, and communicate mathematical ideas;
- (F) analyze mathematical relationships to connect and communicate mathematical ideas; and
- (G) display, explain, and justify mathematical ideas and arguments using precise mathematical language in written or oral communication.








- ❖ Income and Careers
- ❖ Saving and Investing
- ❖ Credit and Debt
- ❖ Planning and Money Management

Personal Financial  
Literacy



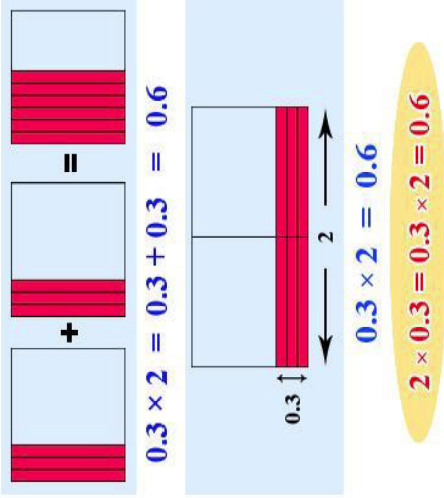
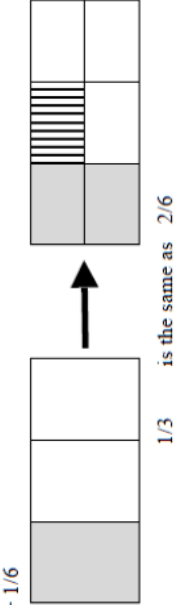
	<h1>Cognitive Changes</h1>		<h1>Moving TEKS</h1>

## Examples:

Change	New Standard (Implementation Year 2014-2015)	Old Standard	Cognitive Change	Content Change
	<p>3.6A classify and sort two- and three-dimensional figures, including cones, cylinders, spheres, triangular and rectangular prisms, and cubes, based on attributes using formal geometric language</p> <p>3.6B use attributes to recognize rhombuses, parallelograms, trapezoids, rectangles, and squares as examples of quadrilaterals and draw examples of quadrilaterals that do not belong to any of these subcategories</p>	<p>3.8A identify, classify, and describe two- and three-dimensional geometric figures by their attributes; compares two-dimensional figures, three-dimensional figures, or both by their attributes using formal geometry vocabulary</p> <p>7.6C use properties to classify three-dimensional figures, including pyramids, cones, prisms, and cylinders</p>	<ul style="list-style-type: none"> <li>deleted “identifying” of two- and three-dimensional figures; although the correct geometric vocabulary is essential, the focus is more on the attributes of the figures</li> <li>deleted “describing” of two- and three-dimensional figures; however, this cognitive demand is underlying in the need to “classify” and “sort”</li> <li>added the “drawing” of examples and non-examples</li> </ul>	<ul style="list-style-type: none"> <li>moved the classifying of three-dimensional figures from grade 7 to grade 3</li> <li>added the types of geometric solids (i.e. cones, cylinders, spheres, triangular and rectangular prisms, and cubes)</li> <li>limited two-dimensional shapes to quadrilaterals</li> <li>identified quadrilaterals to include rhombuses, parallelograms, trapezoids, rectangles, and squares</li> </ul>
	<p>6.12C summarize numeric data with numerical summaries, including the mean and median (measures of center) and the range and interquartile range (IQR) (measures of spread), and use these summaries to describe the center, spread, and shape of the data distribution</p>	<p>6.10B identify mean (using concrete objects and pictorial models), median, mode, and range of a set of data</p>	<ul style="list-style-type: none"> <li>changed “identifying” mean/median/mode/range to “summarizing” numerical data</li> </ul>	<ul style="list-style-type: none"> <li>changed strand from “Probability and Statistics” to “Measurement and Data”</li> <li>added “interquartile range”</li> </ul>
		<p>5.13B describe characteristics of data presented in tables and graphs including median, mode, and range</p> <p>8.12A use variability (range, including interquartile range (IQR)) and select the appropriate measure of central tendency to describe a set of data and justify the choice for a particular situation</p>	<ul style="list-style-type: none"> <li>deleted “justifying” the choice for a particular situation; however, can be applied to Process Standard 6.1G</li> </ul>	<ul style="list-style-type: none"> <li>moved median, mode, and range from grade 5 to grade 6</li> <li>moved interquartile range and variability from grade 8 to grade 6</li> <li>changed describe a “set of data” to describe the “center, spread, and shape of the data distribution”</li> </ul>
	<p>6.12C summarize numeric data with numerical summaries, including the mean and median (measures of center) and the range and interquartile range (IQR) (measures of spread), and use these summaries to describe the center, spread, and shape of the data distribution</p>	<p>6.10B identify mean (using concrete objects and pictorial models), median, mode, and range of a set of data</p>	<ul style="list-style-type: none"> <li>changed “identifying” mean/median/mode/range to “summarizing” numerical data</li> </ul>	<ul style="list-style-type: none"> <li>changed strand from “Probability and Statistics” to “Measurement and Data”</li> <li>added “interquartile range”</li> </ul>
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**Examples:**

<p>5.3(D) represent multiplication of decimals with products to the hundredths using objects and pictorial models, including area models;</p>	<p>This standard builds on the work from fourth grade where students are introduced to decimals and compare them. In fifth grade, students begin multiplying decimals. This work should focus on concrete models and pictorial representations, rather than relying solely on the algorithm. The use of symbolic notations involves having students record the answers to computations (<math>2.25 \times 3 = 6.75</math>), but this work should not be done without models or pictures. This standard includes students' reasoning and explanations of how they use models, pictures, and strategies.</p> <p><b>Example 1:</b></p>  <p><math>0.3 \times 2 = 0.3 + 0.3 = 0.6</math></p> <p><math>0.3 \times 2 = 0.6</math></p> <p><math>2 \times 0.3 = 0.3 \times 2 = 0.6</math></p>
<p>5.3(H) Represent and solve addition and subtraction of fractions with unequal denominators referring to the same whole using objects and pictorial models and properties of operations;</p>	<p>This standard builds on the work in fourth grade where students add fractions with like denominators. In fifth grade, the example provided in the standard has students find a common denominator by finding the product of both denominators. For <math>1/3 + 1/6</math>, a common denominator is 18, which is the product of 3 and 6. This process should be introduced using visual fraction models (area models, number lines, etc.) to build understanding before moving into the standard algorithm to find the least common denominator.</p> <p>Students need to be able to add and subtract with both fractions and mixed numbers.</p> <p>Students should apply their understanding of equivalent fractions and their ability to rewrite fractions in an equivalent form to find common denominators. They should know that multiplying the denominators will always give a common denominator but may not result in the smallest denominator.</p> <p><b>Addition Models:</b></p> <p><b>Example 1</b></p> <p>Example: <math>1/3 + 1/6</math></p>  <p><math>1/3</math> is the same as <math>2/6</math></p> <p>I drew a rectangle and shaded <math>1/3</math>. I knew that if I cut every third in half then I would have sixths. Based on my picture <math>1/3</math> equals <math>2/6</math>. Then I shaded in another <math>1/6</math> with stripes. I ended up with an answer of <math>3/6</math>, which is equal to <math>1/2</math>.</p> <p>On the contrary, based on the algorithm that is in the example of the Standard, when solving <math>1/3 + 1/6</math>, multiplying 3 and 6 gives a common denominator of 18. Students would make equivalent fractions <math>6/18 + 3/18 = 9/18</math> which is also equal to one-half. Please note that while multiplying the denominators will always give a common denominator, this may not result in the smallest denominator.</p>



# *Understanding the new TEKS*

*(Adopted 2012)*

Description	Site	Notes:
Texas Education Agency TEKS	<a href="http://ritter.tea.state.tx.us/rules/tac/chapter111/index.html">http://ritter.tea.state.tx.us/rules/tac/chapter111/index.html</a>	
Live Binders New TEKS Curriculum	<a href="http://www.livebinders.com/play/play?id=707766">http://www.livebinders.com/play/play?id=707766</a>	
New Mathematics TEKS for Texas	<a href="http://www.livebinders.com/play/play?id=930542">http://www.livebinders.com/play/play?id=930542</a>	
Lead4Ward- free resources	<a href="http://lead4ward.com/resources/">http://lead4ward.com/resources/</a>	
TEKS Resource System™	<a href="http://www.teksresourcesystem.net/module/profile/Account/LogOn?ReturnUrl=%2f">http://www.teksresourcesystem.net/module/profile/Account/LogOn?ReturnUrl=%2f</a>	
Snapshot of Assessment Eligible TEKS combined with blueprint	<a href="https://docs.google.com/file/d/0B1hjPUII9i6ddjZH25CRy16aXM/preview?pli=1">https://docs.google.com/file/d/0B1hjPUII9i6ddjZH25CRy16aXM/preview?pli=1</a>	
Grand Prairie- Side-by-sides, Unpacked TEKS, etc.	<a href="http://www.gpsid.org/Page/21894">http://www.gpsid.org/Page/21894</a>	

# CURRICULUM VS. RESOURCES

