

Grades 6-8 Mathematics

Framework for FORMATIVE/CLASSROOM Instruction and Assessment Productive Domains of **Speaking and Writing**

Pennsylvania English Language Proficiency Standard 3

English language learners communicate information, ideas, and concepts necessary for academic success in the content area of Mathematics.

Pennsylvania Core Standards

Speaking and Listening

CC.1.5.6.A Engage effectively in a range of collaborative discussions, on grade-level topics, texts, and issues, building on others' ideas and expressing their own clearly.

CC.1.5.7.A Engage effectively in a range of collaborative discussions, on grade-level topics, texts, and issues, building on others' ideas and expressing their own clearly.

CC.1.5.8.A Engage effectively in a range of collaborative discussions, on grade-level topics, texts, and issues, building on others' ideas and expressing their own clearly.

Mathematics

CC.2.4.6.B.1 Demonstrate an understanding of statistical variability by displaying, analyzing, and summarizing distributions.
M06.D-S.1.1.1, M06.D-S.1.1.2, M06.D-S.1.1.3, M06.D-S.1.1.4,

CC.2.4.7.B.1 Draw inferences about populations based on random sampling concepts.
M07.D-S.1.1.1, M07.D-S.1.1.2

CC.2.4.8.B.1 Analyze and/or interpret bivariate data displayed in multiple representations.
M08.D-S.1.1.1, M08.D-S.1.1.2, M08.D-S.1.1.3, A1.2.2.2.1

The PA ELL Overlays for English Language Arts and Mathematics assist educators in developing instructional units, lessons, or activities that are meaningful and comprehensible for English language learners. They illustrate the dynamic process of adapting instruction and assessment based on the English language proficiency of students. The PA ELL Overlays for English Language Arts and Mathematics are models that exemplify adaptations for a select instructional context and provide resources to extend this process to other instructional units.

Speaking Model Performance Indicator (MPI)

Classroom Context: Identify and analyze information related to data, distribution, and random sampling.

Cognitive Function: Students at all levels of English proficiency will ANALYZE information related to data, distribution and random sampling.

Concepts	Competencies	Vocabulary and Topic Related Language	Proficiency Level 1 Entering	Proficiency Level 2 Emerging	Proficiency Level 3 Developing	Proficiency Level 4 Expanding	Proficiency Level 5 Bridging
Data, distributions, and random sampling	<p>Determine quantitative measures of center and variability.</p> <p>Choose the appropriate measure of center and variability for a set of data.</p> <p>Draw inferences about two populations based on random sampling concepts.</p> <p>Construct, analyze, and interpret bivariate data displayed in scatter plots.</p>	<p>Absolute value</p> <p>Coefficient</p> <p>Dependent variable</p> <p>Distributive property</p> <p>Exponent</p> <p>Greatest Common factor</p> <p>Independent variable</p> <p>Least Common multiple</p> <p>Mean</p> <p>Mean absolute deviation</p> <p>"In conclusion"</p> <p>"Specifically"</p> <p>"Clearly"</p> <p>"To clarify"</p> <p>"From the data observed here, I can explain . . ."</p>	<p>Produce key words associated with analyzing data, distributions or random sampling based on visual or graphic displays following explicit, repeated examples, as modeled and monitored by the teacher with ample student practice.</p>	<p>Produce statements about data, distributions or random sampling based on oral directions and visual or graphic displays with a partner.</p>	<p>Explain themes related to representations of data, based on visual or graphic displays and oral descriptions of real-life situations to a partner.</p>	<p>Discuss themes related to representations data, distributions or random sampling from oral scenarios and visual or graphic displays in a small group.</p>	<p>Discuss data, distributions or random sampling from oral or written scenarios of grade level materials.</p>

Writing Model Performance Indicator (MPI)

Classroom Context: Identify and analyze information related to data, distribution, and random sampling.

Cognitive Function: Students at all levels of English proficiency will ANALYZE information related to data, distribution and random sampling.

Concepts	Competencies	Vocabulary and Topic Related Language	Proficiency Level 1 Entering	Proficiency Level 2 Emerging	Proficiency Level 3 Developing	Proficiency Level 4 Expanding	Proficiency Level 5 Bridging
Data, distributions, and random sampling	<p>Determine quantitative measures of center and variability.</p> <p>Choose the appropriate measure of center and variability for a set of data.</p> <p>Draw inferences about two populations based on random sampling concepts.</p> <p>Construct, analyze, and interpret bivariate data displayed in scatter plots.</p>	<p>Absolute value</p> <p>Coefficient</p> <p>Dependent variable</p> <p>Distributive property</p> <p>Exponent</p> <p>Greatest common factor</p> <p>Independent variable</p> <p>Least common multiple</p> <p>Mean</p> <p>Mean absolute deviation</p> <p>“For example”</p> <p>“With a focus on”</p> <p>“In other words”</p> <p>“I can retell this word problem in the following manner.”</p>	Record and label language associated with analyzing data, distributions, or random sampling with visual or graphic displays following explicit, repeated examples, as modeled and monitored by the teacher with ample student practice.	Draw and describe examples of data, distributions, or random sampling based on oral directions and visual or graphic displays with a partner.	Reproduce word problems about representations of data, based on visual or graphic displays and descriptions of authentic situations in a small group.	Compose word problems about estimates of data, distributions, or random sampling from oral scenarios and visual or graphic displays.	Compose detailed word problems about data, distributions, or random sampling from oral scenarios of grade level materials.

Building Productive Model Performance Indicators (MPI) to differentiate and scaffold instruction per English language proficiency level by adjusting the *language function* and *support*.

Classroom Context:

Cognitive Function: Students at ALL levels of English proficiency will

Concepts	Competencies	Vocabulary and Topic Related Language	Proficiency Level 1 Entering	Proficiency Level 2 Emerging	Proficiency Level 3 Developing	Proficiency Level 4 Expanding	Proficiency Level 5 Bridging
			Language Function (differentiated measurable expectations of student language use increasing in complexity and amount from English language proficiency level 1 to level 5)				
			Label	Restate	Describe	Explain	Evaluate
			Draw	List	Retell	Summarize	
			Recite	Draw	Categorize	Create	Defend
			Name	Describe	Compare/Contrast	Interpret	Apply
			Content Stem (selected focus of grade-level curriculum for all students remains constant across all English language proficiency levels)				
			Instructional Support (scaffolds to accompany explicit instruction with multiple opportunities for student response and feedback decreasing in degree from English language proficiency level 1 to level 5. "I do, We do, You do")				
			Visual support	Visual support	Visual support	Visual support	Visual support
			Sensory support	Sensory support	Sensory support	Realia	Video
			Realia	Realia	Realia	Video	Graphic organizers
			Video	Video	Video	Graphic organizers	Partner/group work
			Graphic	Graphic	Graphic organizers	Tiered	

			organizers	organizers	Tiered assignments	assignments	Front load vocabulary
			Tiered assignments	Tiered assignments	Partner	Partner	Modeling
			Partner	Partner	Flexible grouping	Flexible grouping	Conferences with teacher
			Flexible grouping	Flexible grouping	First language support	Front load vocabulary	Build background knowledge and connections to topic
			First language support	First language support	Re-teaching/Pre-teaching	Modeling	Rubrics
			Re-teaching/Pre-teaching	Re-teaching/Pre-teaching	Modeling	Conferences with teacher	Checklists
			Modeling	Modeling	Conferences with teacher	Build background knowledge and connections to topic	Reciprocal teaching opportunities within groups and the class as a whole
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				Build background knowledge and connections to topic	Rubrics	Checklists	
					Checklists	Reciprocal teaching opportunities within groups and the class as a whole	
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