



## Mathematics & English Language Proficiency (ELP) Standards Alignment Resource Document

### Background

In December 2013, Nebraska adopted new English Language Proficiency (ELP) standards. These standards reflect the increased language demands across content areas and are designed to complement and support new college- and career-ready content standards. The 10 standards are the same across all grade clusters (see p.9). The proficiency level descriptors for each grade cluster and standard show the progression of skill attainment. In September 2015, Nebraska adopted The Nebraska College and Career Ready Standards for Mathematics. These standards focus on increasing rigor and learning expectations with an emphasis on the skills and knowledge needed for success in postsecondary education and the workforce. In December 2017, NDE convened a group of ELL and ELA teachers and administrators to conduct a standards alignment for the two sets of standards. The goals for this alignment work were to meet federal requirements for standards alignment under 1111(b)(F)(iii), create a useful resource for classroom teachers working with English Learners (ELs), and focus on standards that may be more challenging for ELs.

### Supporting English Learners in the Content Classroom

In Nebraska, districts implement various types of program models, called language instruction educational programs (LIEPs), to serve English Learners. In fact, many districts have more than one program model within their district. For this reason, ELs with varying levels of English proficiency will be in general education classrooms and will need different types of supports to access grade-level content. The ELP standards describe five levels of proficiency. For the purpose of this alignment and supporting students in the classroom, the levels have been collapsed into three levels of proficiency (emerging, progressing, and nearly proficient). This document includes proficiency level descriptions for English Learners and options for supporting students at these three levels.

English Learners can better access grade-level content when teachers incorporate classroom supports into their lessons. This document contains general supports by proficiency level that classroom teachers could consider for English Learners. They are grouped by English language proficiency, however, however these supports may be appropriate for all English learners. Depending on the lesson and the skills and background of the student, some of these supports may be more appropriate than others. For sample math activities that incorporate these English Learner supports, refer to pages 7-8 of this document and the NDE Title III website at [www.education.ne.gov/NATORIGIN](http://www.education.ne.gov/NATORIGIN). To understand more about the ELP standards and how to incorporate English learners supports into your lessons, see the Making It Stick Webinar, *Supporting English Learners in Math Lessons*.

## **Q&A: Supporting English Learners in the General Classroom**

**Q:** How do I know the proficiency level of an English Learner in my class?

**A:** The staff in charge of the English Learner program in your district or school can help you obtain this information. Included in this document are descriptions of general profiles that may inform teachers of the productive (speaking and writing) and receptive (listening and reading) skills of students. Please note that levels of proficiency are fluid and at any point a student may demonstrate more or less proficiency in the 4 domains.

**Q:** How long will English learners be in each level?

**A:** Students move through proficiency levels at various timelines. Typically, students will be at lower levels of proficiency for a shorter period of time and stay at a progressing level for more time. However, many factors influence student's proficiency levels including, but not limited to: age, prior schooling, initial English proficiency level, etc. Getting to know a student's background information can help determine the supports they need as well as whether or not there are progressing appropriately in English.

**Q:** How do I know which supports are appropriate?

**A:** First, talk with someone in the district on the ELL team who understands language acquisition and can provide information around supporting students in the classroom. Teachers can use this document as a guide for providing supports during their lessons for students at different levels of English proficiency. There are also sample activities that include more specific supports appropriate for ELs. Many articles are also available to describe these types of supports:

<http://www.colorincolorado.org/article/math-instruction-english-language-learners>

<http://www.janaechevarria.com/?p=1036>

**Q:** How long should English learners get supports?

**A:** That depends on the student. Supports are meant to be applied on an individual basis to help a student access grade-level content and should be gradually removed as students demonstrate grade-level knowledge and skills.

**Q:** What does it mean that an English Learner is proficient?

**A:** A student is proficient when he or she has attained a level of English language skills necessary to independently produce, interpret, collaborate on, and succeed in grade-level content. That is demonstrated by a score of proficient (a score of all 4's and 5's) on the NE English Language Proficiency Assessment, the ELPA21.

**Q:** Is it still appropriate to provide supports to English Learners who are proficient?

**A:** Yes. The lessons here do not include supports for proficient students since they are aligned to the ELP standards. However, proficient students, while no longer receiving supports from the English language program, may still need support in the general education classroom. For example, students may still need support accessing academic vocabulary and content-specific knowledge and skills.

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## *Proficiency Level Descriptions for English Learners*

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*The descriptions below include student characteristics at three levels of English proficiency:*

<b>Emerging</b>	<b>Progressing</b>	<b>Nearly Proficient</b>
<p>Students are emerging when :</p> <ul style="list-style-type: none"> <li>• They are working on tasks related to ELP levels of 1-2.</li> <li>• They are just beginning to develop grade-level English language skills.</li> <li>• They have minimal to limited comprehension in English without support.</li> <li>• They may understand some words and simple sentences but production is limited.</li> <li>• They may be in the “silent period” and processing information but with little output.</li> </ul>	<p>Students are progressing when:</p> <ul style="list-style-type: none"> <li>• They are working on tasks related to ELP levels 2-3 (maybe some 4s).</li> <li>• They are developing grade-level English language skills.</li> <li>• They have fair to good comprehension in English without support.</li> <li>• They understand and produce accurate English but may make errors.</li> <li>• They are working towards producing complex English structures in writing or speaking.</li> </ul>	<p>Students are nearly proficient when:</p> <ul style="list-style-type: none"> <li>• They are working on tasks related to ELP levels 3-4 (mostly 4’s).</li> <li>• They are nearing grade-level English language skills</li> <li>• They have strong comprehension in English without support.</li> <li>• They understand and produce accurate English with few errors.</li> <li>• They are mostly producing complex academic language skills.</li> </ul>

### Classroom Supports for Emerging Students during Math Activities

These supports may be appropriate for English learners at all levels of English proficiency but are particularly useful for emerging students just beginning to develop English skills (see description above). Students at this level may need more supports than students at higher levels of proficiency. Generally, supports should be determined on an individual basis and should be removed when no longer needed by the student.

*Emerging students will need support to build **VOCABULARY** knowledge and skills:*

- Pre-teach vocabulary using non-linguistic representations.
- Provide a [bilingual list of cognates](#). Have student identify cognates within the lesson.
- Provide bilingual dictionaries.
- Provide an anchor chart with processes (Ex. FOIL/Factoring)
- Provide word lists/charts with definitions and illustrations.
- Provide a word bank or word wall with pictures.

*Emerging students will need support to promote **DISCOURSE AND ACADEMIC TALK**:*

- Ask Ss questions to guide thinking and engage them in discourse (Ex. “What do you know?” “Can you show me?”).
- Allow for sufficient wait time for student to respond in English.
- Provide sentence frames to help Ss communicate thinking.
- Provide multiple opportunities to practice math language:
  - Call backs
  - Pairs/small groups
  - Exit tickets
  - Cooperative learning activities (Ex. Numbered heads together, inside-outside circle, etc.)
- Have student prepare and practice response in writing before sharing out.

*Emerging students will need purposeful **SCAFFOLDS** to access grade-level math content:*

- Provide short video clips of demonstration.
- Provide formulas.
- Provide manipulatives and visuals.
- Provide sentence frames or sentence starters.
- Provide a list of steps and teacher modeling.
- Provide a graphic organizer.
- Use color coding to identify steps and/or words.
- Provide calculators/teach calculator skills.
- Provide skeleton/simplified notes.
- Use online resources to chunk/adjust teaching and build background knowledge.
- Provide extended time for guided practice.
- Support student use of a formula chart or interactive notebook.
- Provide examples with something familiar before moving on to the abstract.
- Provide bilingual support when available.
- Use realia.
- Pair student with a peer throughout entire activity (if possible with a student who has the same native language).

*Emerging students may need the opportunity to **DEMONSTRATE UNDERSTANDING** in different ways:*

- Demonstrate knowledge using multiple representations.
- Have student respond with non-verbal cues (thumbs up/thumbs down).
- In partner work, have student respond through paraphrasing or revoicing.
- Modify assessments or assignments (Ex. Reduce the number of tasks).
- Provide extra time to practice and complete assignments.

### Classroom Supports for Progressing Students during Math Activities

These supports may be appropriate for English learners at all levels of English proficiency but are particularly useful for progressing students who are developing grade-level English language skills (see description above). Many of these supports are similar to supports for emerging students but over time may be able to be removed or adjusted as students increase their comprehension and production skills.

*Emerging students will need support to build **VOCABULARY** knowledge and skills:*

- Provide a word list with important terms.
- Identify vocabulary that may have multiple meanings or synonyms.
- Provide an anchor chart with illustrations and definitions.
- Provide bilingual support.

*Emerging students will need support to promote **DISCOURSE AND ACADEMIC TALK**:*

- Provide multiple opportunities to practice math language:
  - Call backs
  - Pairs/small groups
  - Exit tickets
  - Cooperative learning activities (Ex. Numbered heads together, inside-outside circle, etc.)
- Provide sentence frames/sentence starters (for speaking and writing).
- Engage student in academic conversations to develop problem-solving skills.

*Emerging students will need purposeful **SCAFFOLDS** to access grade-level math content:*

- Pair student with a peer.
- Share additional teacher models with student.
- Develop concepts around familiar concepts.
- Provide examples and non-examples.
- Make connections to prior learning.
- Provide time for guided practice.
- Provide manipulatives.
- Guide student use of a formula chart or interactive notebook. Provide formulas, worked out programs, and real life examples for student to add to notebook.
- Provide examples with something familiar before moving on to the abstract.
- Provide bilingual supports when available.
- Provide calculators.
- Provide skeleton notes.
- Provide graphic organizer.
- Use online resources to chunk/adjust teaching and build background knowledge.
- Use color coding to identify steps and/or words.
- Use realia.

*Emerging students may need the opportunity to **DEMONSTRATE UNDERSTANDING** in different ways:*

- Provide additional time to practice with scaffolds before turning in assignment.
- Encourage students to create visual models to represent what's happening in the problem.
- Modify assignments/data.

### Classroom Supports for Nearly Proficient Students during Math Activities

These supports may be appropriate for English learners at all levels of English proficiency but are particularly useful for nearly proficient students who are nearing grade-level English language skills (see description above). At this level of proficiency student may need fewer and different types of supports although they may benefit from some of the same supports as other English learners. These supports may also be appropriate for newly proficient students who will need support particularly around academic vocabulary and discourse. Generally, supports should be determined on an individual basis.

*Emerging students will need support to build **VOCABULARY** knowledge and skills:*

- Help students create vocabulary lists (with student illustrations) – or- provide word list with important terms.
- Provide bilingual dictionary/word list.
- Emphasize the use of key vocabulary in complex sentences to help student answer questions.

*Emerging students will need support to promote **DISCOURSE AND ACADEMIC TALK**:*

- Provide sentence frames/sentence starters (for speaking and writing).
- Engage student in academic conversations to develop problem-solving skills.
- Emphasize the use of key vocabulary in complex sentences to help student respond.
- Provide opportunities to talk about math thinking using cooperative learning structures.

*Emerging students will need purposeful **SCAFFOLDS** to access grade-level math content:*

- Use color coding to identify steps and/or academic language.
- Provide manipulatives.
- Provide calculators.
- Provide graphic organizers.
- Partner with a peer.
- Build background knowledge.
- Make connections to prior learning.

*Emerging students may need the opportunity to **DEMONSTRATE UNDERSTANDING** in different ways:*

- Provide more opportunities for student to create his/her own problems and explain reasoning.
- Encourage student to create visual models to represent what’s happening in the problem.

## Sample Math Engaging Tasks by Grade Level

In order to determine the correspondences between the Nebraska Mathematics Standards and English Language Proficiency (ELP) Standards, teachers and administrators throughout the state from both fields came together to determine the math standards that might be challenging for English learners. For each grade level, they developed sample “engaging tasks” for that standard. For the purposes of the alignment, an engaging task was defined as one that:

- Develops deeper levels of understanding of mathematical concepts and ideas,
- Requires cognitive effort to develop a deeper understanding of mathematical concepts and ideas,
- Allows students to make connections among multiple representations to develop meaning, and

After creating the sample engaging task, the team determined which ELP standard corresponded to the math standard and math task. Lastly, the team determined what supports would be most appropriate for English learners at different levels of English proficiency to support them in the task. These samples are meant to be used by classroom and content teachers to understand the types of supports that might help English Learners engage in the math standards at all grade levels.

<b>Grade/Math Strand (link to activity)</b>	<b>Standard</b>	<b>Indicator</b>
Grade K Data	<a href="#">MA 0.4.2</a> Analysis and Application	MA.0.4.2.a
Grade 1 Data	<a href="#">MA 1.4.2</a> Analysis and Application	MA 1.4.2.a
Grade 1 Algebra	<a href="#">MA 1.2.3</a> Applications	MA 1.2.3.c
Grade 2 Geometry	<a href="#">MA 2.3.1</a> Characteristics	MA 2.3.1.c
Grade 3 Algebra	<a href="#">MA 3.2.2</a> Algebraic Processes	MA 3.2.2.a
Grade 4 Number	<a href="#">MA 4.1.1</a> Numeric Relationships	MA 4.1.1.k
Grade 4 Geometry	<a href="#">MA 4.3.1</a> Characteristics	MA 4.3.1.c
Grade 5 Number	<a href="#">MA 5.1.1</a> Numeric Relationships	MA 5.1.1.b
Grade 5 Algebra	<a href="#">MA 5.2.3</a> Applications	MA 5.2.3.a
Grade 6 Number	<a href="#">MA 6.1.1</a> Numeric Relationships	MA 6.1.1.f
Grade 7 Geometry	<a href="#">MA 7.3.3</a> Measurement	MA 7.3.3.a/MA 7.3.3.b
Grade 8 Algebra	<a href="#">MA 8.2.3</a> Applications	MA 8.2.3.c
Algebra	<a href="#">MA 11.2.3</a> Applications	MA 11.2.3.a
Data	<a href="#">MA 11.4.2</a> Analysis & Applications	MA 11.4.2.g
Grade 12 Advanced Topics/Number	<a href="#">MA 12.1</a> Numeric Relationships	MA 12.1.1.e

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## *English Language Proficiency Standards*

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**The 10 ELP Standards highlight and amplify the critical language, knowledge about language, and skills using language that are necessary for ELs to be successful in schools. An ELL can...**

<b>1</b>	construct meaning from oral presentations and literacy and informational text through grade-appropriate listening, reading, and viewing
<b>2</b>	participate in grade-appropriate oral and written exchanges of information, ideas, and analyses, responding to peer, audience, or reader comments and questions
<b>3</b>	speak and write about grade- appropriate complex literacy and informational texts and topics
<b>4</b>	construct grade- appropriate oral and written claims and support them with reasoning and evidence
<b>5</b>	conduct research and evaluate and communicate findings to answer questions or solve problems
<b>6</b>	analyze and critique the arguments of others orally and in writing
<b>7</b>	adapt language choices to purpose, task, and audience when speaking and writing
<b>8</b>	determine the meaning of words and phrases in oral presentations and literary and informational text
<b>9</b>	create clear and coherent grade- appropriate speech and text
<b>10</b>	make accurate use of standard English to communicate in grade- appropriate speech and writing



## *Nebraska Mathematics\_ELP Standards Matrix*

Mathematics Standards	English Language Proficiency Standards									
	1	2	3	4	5	6	7	8	9	10
<b>Number</b>										
MA 4.1.1.k Compare and order fractions having unlike numerators and unlike denominators using visual representations, comparison symbols and verbal reasoning.				X		X				
MA 5.1.1.b Compare whole numbers, fractions, mixed numbers, and decimals through the thousandths place and represent comparisons using symbols $<$ , $>$ , or $=$ .		X					X			
MA 6.1.1.f Explain and determine unit rates.				X						
MA 12.1.1.3 Recognize that, unlike multiplication of numbers, matrix multiplication for square matrices is not a commutative operation, but still satisfies the associative and distributive properties.				X						
<b>Algebra</b>										
MA 1.2.3.c Create a real-world problem to represent a given equation involving addition and subtraction within 20.									X	
MA 3.2.2.a Apply the commutative, associative, and distributive properties as strategies to multiply and divide.					X					
MA 5.2.3.a Solve real-world problems involving addition and subtraction of fractions and mixed numbers with like and unlike denominators.		X								
MA 8.2.3.c Solve real-world multi-step problems involving rational numbers in any form.				X						
MA 11.2.3.a Analyze, model, and solve real-world problems using various representations.				X						

Geometry										
MA 2.3.1.c	Divide circles and rectangles into two, three, or four equal parts. Describe the parts using the language of halves, thirds, fourths, half of, a third of, a fourth of.				X					
MA 3.3.3.b	Tell and write time to the minute using both analog and digital clocks.			X						
MA 4.3.1.c	Identify and draw points, lines, line segments, rays, angles, parallel lines, perpendicular lines, and intersecting lines, and recognize the in two-dimensional figures.			X				X		
MA 7.3.3.a	Solve real-world problems involving perimeter and areas of composite shapes made from triangles, quadrilaterals, and polygons.		X							
Data										
MA 0.4.2.a	Identify, sort and classify objects by size, shape, color, and other attributes. Identify objects that do not belong to a particular group and explain the reasoning used.				X					
MA 1.4.2.a 2	Ask and answer questions about the total number of data points, how many in each category, and compare categories by identifying how many more or less are in a particular category using a picture graph.		X							
MA 11.4.2.g	Explain the impact of sampling methods, bias, and the phrasing of questions asked during data collection, and the conclusions that can rightfully be made.				X	X				

## **Contributions**

Thank you to all who contributed to this important work. The following educators participated in the Nebraska Department of Education's Mathematics\_ELP Standards Alignment work.

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