

Unit Name: Represent and analyze mathematical situations and structures using algebraic symbols		Unit Length: 45 minutes
Overview: Who's the greatest?		
DESIRED RESULTS		
TEKS and Student Expectations (See Appendix A for detailed description.)		
(A.1) Foundations for functions. (C), (D)		
<p>Enduring Understandings (Big Ideas)</p> <p>Represent and analyze mathematical situations and structures using algebraic symbols.</p> <p>Use algebraic symbols to represent and explain mathematical relationships.</p> <p>Draw reasonable conclusions about a situation being modeled.</p>	<p>Essential Questions</p> <ol style="list-style-type: none"> 1. What happens to an inequality when the operation involves addition or subtraction of a positive number? A negative number? Does the direction of the inequality symbol change? 2. What happens to an inequality when the operation involves multiplication or division of a positive number? Does the direction of the inequality symbol change? 3. What happens to an inequality when the operation involves multiplication or division of a negative number? Does the direction of the inequality symbol change? <p>Discussion: Was the inequality symbol ever reversed? Which</p>	<p>Critical Vocabulary</p> <p>Operation (operación)</p> <p>Positive (positivo)</p> <p>Negative (negativo)</p> <p>inequality (desigualdad)</p> <p>multiplication (multiplicación)</p> <p>division (división)</p>

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	<p>operation caused the reversal?</p> <p>Reflection: Why is this information important to know when solving an inequality or an equation?</p>	
<p><u>Learning Goals</u> Objective: To analyze properties of inequalities.</p>	<p><u>Materials Needed</u></p> <ol style="list-style-type: none"> 1. A desk size number line 2. One number die (1-6) 3. Two color tokens (different colors) 4. Cards (operation 6, 7, and 8) 	
ASSESSMENT PLAN		
<p><u>Performance Tasks</u> The students will write two inequality equations that involve operations that will not change the inequality symbol. The students will write two inequality equations that involve operations that will change the inequality symbol.</p> <p>The students will write two relevant equations that involve inequalities.</p>	<p><u>Other Evidence</u> Teacher monitors student work, asks probing questions, and provides corrective feedback as needed during the lesson.</p>	
GENERAL MELL CONNECTIONS THAT APPLY TO ALL LESSONS		
<p>(MC-01) - To assist the ELLs, the teacher should avoid speaking too rapidly and when possible use basic words rather than unfamiliar ones to introduce new concepts.</p> <p>(MC-02) - Teachers should foster trusting relationships with ELLs through informal conversations and presentation of a culturally rich classroom.</p> <p>(MC-03) - ELLs may need extra opportunities to demonstrate mastery. Grading policies should be flexible enough to provide multiple learning opportunities without severe grade penalties.</p> <p>(MC-04) - ELLs may work at a slower pace than other students</p>		

because of limited English language skills and should be provided with shortened assignments, or when appropriate, extra time to work on assignments.

(MC-05) - ELLs should be scheduled in a math class that has students who have some proficiency in both languages. Teachers may need to work with counselors and others to ensure that this happens.

(MC-06) - Teachers should offer tutoring as frequently as possible and encourage ELLs to come in for extra assistance. If possible, the teacher should arrange for an aide or parent volunteer who speaks the language of the ELL to help with translation during the tutoring period on a regular schedule (for example, on Tuesdays and Thursdays, after school).

LEARNING PLAN

The teacher should guide the students through the following activities by introducing concepts with visual aids, modeling, sample problems, guided discussion and questioning:

1. Students are to create an integer number line strip large enough to move two tokens on it. Use one number line for every two students. (MC-08), (MC-10), (MC-14), (MC-15)
2. Pass out cards representing each of the mathematics operations. Cards are to be shuffled and placed upside down. Provide one deck of cards for every two students. (MC-08), (MC-10), (MC-14), (MC-15)
3. Each student tosses a die to decide his or her starting position or the teacher can toss a die to determine the starting position for each pair. If the same number is tossed for each student, repeat the toss. (MC-08), (MC-10), (MC-14), (MC-15)
4. Each student is to place his or her token on the number line on the number assigned. This represents his or her starting position. (MC-08), (MC-10), (MC-14), (MC-15)
5. Students are to write their value on the

MELL Connections

(MC-08) - Hands-on activities involving math manipulatives are typically helpful to ELLs because the lesson involves multiple learning modalities and does not require the student to rely solely upon his/her ability to understand verbal instruction.

(MC-10) - ELLs should be provided with or assisted in developing a learning aid that shows math vocabulary in both English and their native language and should be allowed to use this tool

<p>first line of their worksheet. They are also to write one inequality or equality symbol to represent who has the greatest value. (MC-08), (MC-10), (MC-14), (MC-15)</p> <p>6. One student flips a card from the deck to reveal the operation. This operation is to be applied by each student to his or her current value. Move accordingly on number line. (MC-08), (MC-10), (MC-14), (MC-15)</p> <p>7. Students are to write their new value on the second line of their worksheet and write one inequality to represent who has the greatest value. (MC-08), (MC-10), (MC-14), (MC-15)</p> <p>8. Students are to observe and write down if the operation affected their inequality or equality symbol. (MC-08), (MC-10), (MC-14), (MC-15)</p> <p>Closure:</p> <p>Multiplying any real number by an integer does not always guarantee a number with a larger value. One example is if one integer is positive and the other is negative. Also, dividing any real number by an integer does not always guarantee a smaller value.</p>	<p>when working on assignments. Student-made glossaries, word walls, and compare and contrast charts help ELLs learn mathematics vocabulary.</p> <p>(MC-14) - Teachers should support ELLs who need extra time for dialogue by providing opportunities to work in groups. When possible, pair each ELL with another student who has some fluency in the ELL's dominant language and who can function as a "peer tutor."</p> <p>(MC-15) - In forming groups, the teacher should make sure that ELLs are assigned with a peer tutor, that ELLs are distributed among groups, and that no group is predominantly comprised of ELLs.</p>
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English Language Proficiency Standards Quick Reference. (Chapter 74. Curriculum Requirements Subchapter A. Required Curriculum, §74.4. English Language Proficiency Standards). The standards

checked here are merely examples for the teacher's consideration for inclusion in this lesson.	
<p>Cross-curricular second language acquisition/ listening. The ELL listens to a variety of speakers including teachers, peers, and electronic media to gain an increasing level of comprehension of newly acquired language in all content areas. ELLs may be at the beginning, intermediate, advanced, or advanced high stage of English language acquisition in listening. In order for the ELL to meet grade-level learning expectations across the foundation and enrichment curriculum, all instruction delivered in English must be linguistically accommodated (communicated, sequenced, and scaffolded) commensurate with the student's level of English language proficiency. The student is expected to:</p>	<p>[X] (c)(2)(A) - distinguish sounds and intonation patterns of English with increasing ease;</p> <p>(c)(2)(B) - recognize elements of the English sound system in newly acquired vocabulary such as long and short vowels, silent letters, and consonant clusters;</p> <p>[X] (c)(2)(C) - learn new language structures, expressions, and basic and academic vocabulary heard during classroom instruction and interactions;</p> <p>[X] (c)(2)(D) - monitor understanding of spoken language during classroom instruction and interactions and seek clarification as needed;</p> <p>[X] (c)(2)(E) - use visual, contextual, and linguistic support to enhance and confirm understanding of increasingly complex and elaborated spoken language;</p> <p>(c)(2)(F) - listen to and derive meaning from a variety of media such as audio tape, video, DVD, and CD ROM to build and reinforce concept and language attainment;</p> <p>[X] (c)(2)(G) - understand the general meaning, main points, and important details of spoken language ranging from situations in which topics, language, and contexts are familiar to unfamiliar;</p> <p>[X] (c)(2)(H) - understand implicit ideas and information in increasingly complex spoken language commensurate with grade-level learning expectations; and</p> <p>[X] (c)(2)(I) - demonstrate listening comprehension of increasingly complex spoken English by following directions, retelling or summarizing spoken messages, responding to questions and requests, collaborating with peers, and taking notes commensurate with content and grade-level needs.</p>
<p>Cross-curricular</p>	<p>[X] (c)(3)(A) - practice producing sounds</p>

<p>second language acquisition/speaking. The ELL speaks in a variety of modes for a variety of purposes with an awareness of different language registers (formal/informal) using vocabulary with increasing fluency and accuracy in language arts and all content areas. ELLs may be at the beginning, intermediate, advanced, or advanced high stage of English language acquisition in speaking. In order for the ELL to meet grade-level learning expectations across the foundation and enrichment curriculum, all instruction delivered in English must be linguistically accommodated (communicated, sequenced, and scaffolded) commensurate with the student's level of English language proficiency. The student is expected to:</p>	<p>of newly acquired vocabulary such as long and short vowels, silent letters, and consonant clusters to pronounce English words in a manner that is increasingly comprehensible;</p> <p>[X] (c)(3)(B) - expand and internalize initial English vocabulary by learning and using high-frequency English words necessary for identifying and describing people, places, and objects, by retelling simple stories and basic information represented or supported by pictures, and by learning and using routine language needed for classroom communication;</p> <p>[X] (c)(3)(C) - speak using a variety of grammatical structures, sentence lengths, sentence types, and connecting words with increasing accuracy and ease as more English is acquired;</p> <p>[X] (c)(3)(D) - speak using grade-level content area vocabulary in context to internalize new English words and build academic language proficiency;</p> <p>[X] (c)(3)(E) - share information in cooperative learning interactions;</p> <p>[X] (c)(3)(F) - ask and give information ranging from using a very limited bank of high-frequency, high-need, concrete vocabulary, including key words and expressions needed for basic communication in academic and social contexts, to using abstract and content-based vocabulary during extended speaking assignments;</p> <p>[X] (c)(3)(G) - express opinions, ideas, and feelings ranging from communicating single words and short phrases to participating in extended discussions on a variety of social and grade-appropriate academic topics;</p> <p>[X] (c)(3)(H) - narrate, describe, and explain with increasing specificity and detail as more English is acquired;</p> <p>(c)(3)(I) - adapt spoken language appropriately for formal and informal purposes; and</p> <p>(c)(3)(J) - respond orally to information presented in a wide variety of print, electronic, audio, and visual media to build and reinforce concept and language attainment.</p>
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<p>Cross-curricular second language acquisition/reading. The ELL reads a variety of texts for a variety of purposes with an increasing level of comprehension in all content areas. ELLs may be at the beginning, intermediate, advanced, or advanced high stage of English language acquisition in reading. In order for the ELL to meet grade-level learning expectations across the foundation and enrichment curriculum, all instruction delivered in English must be linguistically accommodated (communicated, sequenced, and scaffolded) commensurate with the student's level of English language proficiency. For Kindergarten and Grade 1, certain of these student expectations apply to text read aloud for students not yet at the stage of decoding written text. The student is</p>	<p>(c)(4)(A) - learn relationships between sounds and letters of the English language and decode (sound out) words using a combination of skills such as recognizing sound-letter relationships and identifying cognates, affixes, roots, and base words;</p> <p>(c)(4)(B) - recognize directionality of English reading such as left to right and top to bottom;</p> <p>[X] (c)(4)(C) - develop basic sight vocabulary, derive meaning of environmental print, and comprehend English vocabulary and language structures used routinely in written classroom materials;</p> <p>[X] (c)(4)(D) - use prereading supports such as graphic organizers, illustrations, and pretaught topic-related vocabulary and other prereading activities to enhance comprehension of written text;</p> <p>[X] (c)(4)(E) - read linguistically accommodated content area material with a decreasing need for linguistic accommodations as more English is learned;</p> <p>[X] (c)(4)(F) - use visual and contextual support and support from peers and teachers to read grade-appropriate content area text, enhance and confirm understanding, and develop vocabulary, grasp of language structures, and background knowledge needed to comprehend increasingly challenging language;</p> <p>[X] (c)(4)(G) - demonstrate comprehension of increasingly complex English by participating in shared reading, retelling or summarizing material, responding to questions, and taking notes commensurate with content area and grade level needs;</p> <p>(c)(4)(H) - read silently with increasing ease and comprehension for longer periods;</p> <p>[X] (c)(4)(I) - demonstrate English comprehension and expand reading skills by employing basic reading skills such as demonstrating understanding of supporting ideas and details in text and graphic sources, summarizing text, and distinguishing main ideas from details commensurate with content area needs;</p> <p>[X] (c)(4)(J) - demonstrate English comprehension and expand reading skills by</p>
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<p>expected to:</p>	<p>employing inferential skills such as predicting, making connections between ideas, drawing inferences and conclusions from text and graphic sources, and finding supporting text evidence commensurate with content area needs; and</p> <p>[X] (c)(4)(K) - demonstrate English comprehension and expand reading skills by employing analytical skills such as evaluating written information and performing critical analyses commensurate with content area and grade-level needs.</p>
<p><i>Cross-curricular second language acquisition/writing.</i> The ELL writes in a variety of forms with increasing accuracy to effectively address a specific purpose and audience in all content areas. ELLs may be at the beginning, intermediate, advanced, or advanced high stage of English language acquisition in writing. In order for the ELL to meet grade-level learning expectations across foundation and enrichment curriculum, all instruction delivered in English must be linguistically accommodated (communicated, sequenced, and scaffolded) commensurate with</p>	<p>(c)(5)(A) - learn relationships between sounds and letters of the English language to represent sounds when writing in English;</p> <p>(c)(5)(B) - write using newly acquired basic vocabulary and content-based grade-level vocabulary;</p> <p>[X] (c)(5)(C) - spell familiar English words with increasing accuracy, and employ English spelling patterns and rules with increasing accuracy as more English is acquired;</p> <p>(c)(5)(D) - edit writing for standard grammar and usage, including subject-verb agreement, pronoun agreement, and appropriate verb tenses commensurate with grade-level expectations as more English is acquired;</p> <p>e(c)(5)(E) - employ increasingly complex grammatical structures in content area writing commensurate with grade-level expectations, such as:</p> <ul style="list-style-type: none"> (i) using correct verbs, tenses, and pronouns/antecedents; (ii) using possessive case (apostrophes) correctly; and (iii) using negatives and contractions correctly; <p>(c)(5)(F) - write using a variety of grade-appropriate sentence lengths, patterns, and connecting words to combine phrases, clauses, and sentences in increasingly accurate ways as more English is acquired; and</p> <p>(c)(5)(G) - narrate, describe, and explain with increasing specificity and detail to fulfill content area writing needs as more English is acquired.</p>

<p>the student's level of English language proficiency. For Kindergarten and Grade 1, certain of these student expectations do not apply until the student has reached the stage of generating original written text using a standard writing system. The student is expected to:</p>	
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Appendix 1
TEKS and Student Expectations

(A.1) **Foundations for functions.** The student understands that a function represents a dependence of one quantity on another and can be described in a variety of ways.

The student is expected to:

(C) describe functional relationships for given problem situations and write equations or inequalities to answer questions arising from the situations;

(D) represent relationships among quantities using concrete models, tables, graphs, diagrams, verbal descriptions, equations, and inequalities.