



ELD STANDARDS FRAMEWORK FOR DEVELOPING THE LANGUAGE OF MATH GRADES 9-12

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SECTION 1: ELD STANDARDS FRAMEWORK FOR DEVELOPING THE LANGUAGE OF MATH GRADES 9-12 - OVERVIEW

Section 1: Purpose

The **purpose of the English Language Development (ELD) Standards Framework and Instructional Guidance documents** is to provide clarity in the implementation and integration of the Nevada ELD Standards with Nevada Academic Content Standards and instruction. In addition, they support the application of the Nevada Educator Performance Framework (NEPF) Standards of best practices for English learners and other diverse student populations.

These Nevada ELD Standards documents specify the connection between the WIDA ELD Standards and the content disciplinary practices of mathematics. The practices identified in this document were created within the Common Core State Standards (CCSS) for Mathematics. The ELD Standards Instructional Guidance documents conceptualize the Nevada ELD Standards as intertwined with learning the Nevada Academic Content Standards and College and Career Readiness Standards.

Section 1: [Overview Document](#)

Section 2: [Framework for Developing the Language of MATH](#)

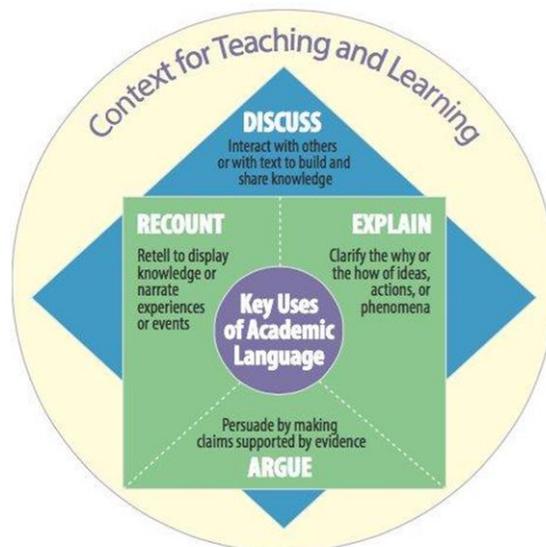
- A. Student Moves: Language Use Expectations
- B. Teacher Moves: Supports for Processing, Producing, and Collaborating in the Language of the Content
- C. Teacher Moves: Supports for Collaborating in the Academic Language

Section 3: [Instructional Guidance: Mathematical Practices](#)

- A. Summary: Content Disciplinary Practices and Example Tasks
- B. Math Disciplinary Practices
 - Practice 1: Make sense of problems and persevere in solving them
 - Practice 2: Reason abstractly and quantitatively
 - Practice 3: Construct viable arguments and critique the reasoning of others
 - Practice 4: Model with mathematics
 - Practice 5: Use appropriate tools strategically
 - Practice 6: Attend to precision
 - Practice 7: Look for and make use of structure
 - Practice 8: Look for and express regularity in repeated reasoning

Section 1: Key Uses of Academic Language

These purposes, referred to as **Key Uses**, were identified based on reviews of literature and a language analysis of college and career readiness standards:



KEY USES	KEY USES DESCRIPTION
RECOUNT	To display knowledge or narrate experiences or events. Example tasks for the Key Use of Recount include telling or summarizing stories, producing information reports, and sharing past experiences.
EXPLAIN	To clarify the “why” or the “how” of ideas, actions, or phenomena. Example tasks for the Key Use of Explain include describing life cycles, sharing why or how things work, stating causes and effects, and sharing results of experiments.
ARGUE	To persuade by making claims supported by evidence. Example tasks for the Key Use of Argue include stating preferences or opinions and constructing arguments with evidence.
DISCUSS	To interact with others to build meaning and share knowledge. Example tasks for the Key Use of Discuss include participating in small or large group activities and projects.

SECTION 2: ELD STANDARDS FRAMEWORK FOR DEVELOPING THE LANGUAGE OF MATH GRADES 9-12

Section 2A: Student Moves: Language Use Expectations

TASK SAMPLES from the *WIDA Can Do Descriptors, Key Uses Edition* show us that toward the end of a given level of English language proficiency, and with instructional support, **English learners can process or produce...**

Language Domains	Entering/Emerging (Levels 1-2)	Developing/Expanding (Levels 3-4)	Bridging/Reaching (Levels 5-6)
Receptive Listening & Reading	<p>With appropriate visual, graphic or interactive support students can...</p> <p>Participate in short conversational and written exchanges to present information and respond to simple yes/no questions and some wh-questions.</p> <ul style="list-style-type: none"> • Recognize the meaning of some words learned through conversation and show increasing awareness of differences between informal and language appropriate to the classroom. • Determine the meaning of some general academic and content-specific words and phrases. • Label key vocabulary or steps within a math operation. • Identify language of basic components of units to understand problems. • Choose and interpret units consistently in formulas. • Understand the concept of a function using demonstrated models. 	<p>With appropriate visual, graphic or interactive support, as necessary, student can...</p> <ul style="list-style-type: none"> • Participate in conversations, discussions, and written exchanges, build on the ideas of others and express his or her own ideas clearly with specific and relevant points. • Determine the meaning of general academic and content-specific words and phrases. • Match general and some specific technical language of associated content to oral examples. • Discriminate between different meanings of language general and specific technical language associated with content in oral discourse. • Understand the concept of a function and function notation using demonstrated models and some student-constructed models. 	<ul style="list-style-type: none"> • Use a wide range of strategies to Participate in extended conversations, discussions, and written exchanges, build on the ideas of others and express his or her own ideas clearly and persuasively. • Determine the meaning of general academic and content-specific words and phrases. • Apply technical language related to math content problem-solving scenarios. • Analyze functions using different representations. Analyze and defend geometric arguments, theorems or shapes (e.g., proven theorems about lines and angles).

Section 2A: Student Moves: Language Use Expectations (continued)

TASK SAMPLES from the *WIDA Can Do Descriptors, Key Uses Edition* show us that toward the end of a given level of English language proficiency, and with instructional support, **English learners can process or produce...**

Language Domains	Entering/Emerging (Levels 1-2)	Developing/Expanding (Levels 3-4)	Bridging/Reaching (Levels 5-6)
<p>Productive Speaking & Writing</p>	<p>With appropriate visual, graphic or interactive support students can...</p> <ul style="list-style-type: none"> • Use an emerging set of strategies to communicate ideas orally and written mathematical representations. • Use a model of a structure of an expression to identify ways to write expressions in equivalent forms. • Name variables from illustrations and notation. • Produce elements of equations or formulas from word/phrase banks and models (e.g., labeling diagrams). • Describe equations or formulas using figures and notation from word/phrase banks and models. • Explain each step in solving simple equations using simple sentences. 	<p>With visual, graphic or interactive support, as necessary, student can...</p> <ul style="list-style-type: none"> • Use an increasing range of strategies to communicate ideas orally and written mathematical representations. • State examples of equivalent form of an expression and explain properties of the quantity represented by the expression. • Write expressions in equivalent forms to solve problems. • Interpret representations of functions of two variables with or without visual support. • Sequence steps from solving problems involving equations or formulas using figures, notation, and sequential language. • Explain uses of equations or formulas using figures, notation, and simple, compound and some complex sentences. 	<ul style="list-style-type: none"> • Use a wide range of strategies to communicate ideas orally and written mathematical representations. • Determine the meaning of general academic and content-specific words and phrases. • Apply technical language related to content grade-level oral scenarios • Represent and solve equations and inequalities graphically. • Summarize methods for solving problems involving equations and inequalities using complex sentences. • Defend geometric arguments, theorems or shapes (e.g., proven theorems about lines and angles).

Section 2B: Teacher Moves: Supports for Processing and Producing Language

What general supports can teachers provide to students at different language proficiency levels to process or produce academic language in all language domains? (See the [Go to Strategies Matrix](#), page 19.)

Entering/Emerging (Levels 1-2)	Developing/Expanding (Levels 3-4)	Bridging/Reaching (Levels 5-6)
<ul style="list-style-type: none"> • Build background in key language and concepts. • Provide explicit instruction and practice in key social and instructional vocabulary. • Model orally the academic language and specific vocabulary. • Provide explicit instruction and practice for students to construct the language using sentence and discourse starters and visual aids from the text. • Use physical gestures to accompany oral directives. • Label visuals and objects with target vocabulary. • Introduce cognates to aid comprehension. • Give two step Contextualized directions. • Restate/rephrase and use Patterned Oral Language routines. • Provide a list of important concepts on a graphic organizer. • Provide a content vocabulary Word Bank with non-linguistic representations. • Extend content vocabulary with multiple examples and non-examples 	<ul style="list-style-type: none"> • Build background in key language and concepts. • Model orally the academic language and specific vocabulary. • Provide explicit instruction and practice for students to construct the language using sentence and discourse starters and visual aids from the text. • Provide a system for students to record and process key academic and content-specific vocabulary. • Check Comprehension of all students frequently. Use Wait Time. • Require full sentence responses by asking open ended questions. • Require the use of academic language. • Provide a list of important concepts on a graphic organizer. • Provide a content vocabulary Word Bank with non-linguistic representations. • Extend content vocabulary with multiple examples and non-examples 	<ul style="list-style-type: none"> • Build background in key language and concepts. • Use complex sentence and discourse starters. • Model orally the academic language and specific vocabulary. • Confirm students' prior knowledge of content topics. • Extend content vocabulary with multiple examples and non-examples.

Section 2C: Teacher Moves: Supports for Collaborating in the Academic Language

How can teachers provide ongoing opportunities for students to collaborate using academic language?

Entering/Emerging (Levels 1-2)	Developing/Expanding (Levels 3-4)	Bridging/Reaching (Levels 5-6)
<p>Prior to reading, writing, and discussion, Teacher prepares collaborative discourse structures for students to...</p> <ul style="list-style-type: none"> • Engage in pair work (in L1 if possible) to prepare questions for discussion using graphic, interactive, and/or language supports. • Participate in pair/triad/small group discussions using graphic, interactive, and/or language supports (including L1 as appropriate). • Use Clock Buddies. • Use Numbered Heads Together • Use Think-Pair-Share Squared. • Use key sentence frames for pair interactions • Participate with Strategic Partners at a higher English proficiency level and/or with same primary language peer(s). • Use Think-Write-Pair Share • Use Cloze sentences with a Word Bank • Use dialogue structures (e.g.): My turn/ your turn; Partner A/Partner B; Collaborative groups 	<p>Prior to reading, writing, and discussion, Teacher prepares collaborative discourse structures for students to...</p> <ul style="list-style-type: none"> • Engage pair work to prepare questions for discussion using graphic, interactive, and/or language supports as needed. • Contribute to pair/triad/small group discussions by supporting with examples, asking clarifying questions, and using graphic, interactive, and/or language supports as needed. • Engage with whole/large group discussions by connecting ideas with supporting details, generating original questions, and using graphic, interactive, and/or language supports as needed • Use Think-Pair-Share • Repeat and expand their responses and other students' responses in a Collaborative Dialogue • Use dialogue structures (e.g.): My turn/ your turn; Partner A/Partner B; Collaborative groups 	<p>Prior to reading, writing, and discussion, Teacher prepares collaborative discourse structures for students to...</p> <ul style="list-style-type: none"> • Engage in structured pair work to process • Inform and formulate thinking, then prepare questions for discussion • Contribute to pair/triad/small group discussions to share individual ideas and compare with other ideas in the group, using graphic, interactive, and/or language supports as needed • Engage with whole/large group discussions by generating original questions and/or building on the ideas of others using graphic, interactive, and/or language supports as needed • Use dialogue structures (e.g.): My turn/ your turn; Partner A/Partner B; Collaborative groups

SECTION 3: INSTRUCTIONAL GUIDANCE
for English Language Development in the Content Area of
Mathematical Practices Grades 9-12

SECTION 3: INSTRUCTIONAL GUIDANCE: MATH PRACTICES GRADES 9-12

Section 3A: Summary: Content Disciplinary Practices and Example Tasks

Table of example tasks for each practice, with sample proficiency descriptors for each [Key Use of Academic Language](#):

Math Practices	Example Tasks
1. Make sense of problems and persevere in solving them.	Looking For and Making Use of Structure - Quadratic Equations 1
2. Reason abstractly and quantitatively.	You Pour, I Choose
3. Construct viable arguments and critique the reasoning of others.	Best Circle
4. Model with mathematics.	Penny Circle
5. Use appropriate tools strategically.	Graphs
6. Attend to precision.	Expressions
7. Look for and make use of structure.	Looking For and Making Use of Structure - Quadratic Equations 1
8. Look for and express regularity in repeated reasoning.	Magic Squares

Section 3B: Math Disciplinary Practices

Practice 1a: Make Sense of Problems and Persevere in Solving Them – Teacher Moves

Teacher Moves: What supports can teachers provide students at different proficiency levels to use language to interpret or make meaning of the content? Examples:

Entering/Emerging (Levels 1-2)	Developing/Expanding (Levels 3-4)	Bridging/Reaching (Levels 5-6)
<ul style="list-style-type: none"> • Provide scaffolded tasks for students to draw a picture of their solution and to label it. • Provide simple patterned oral and written sentence frames for students to emulate/copy basic content provided with a predetermined learning partner. • Model the language of mathematical expression ratio examples, and then provide the task for students to label the mathematical expressions with a predetermined learning partner; have students state the academic vocabulary associated with the number or illustrated expression. • Provide sentence frames or sentence starters for students to use to access group discussion. Example: The first thing I did was _____. I already know _____ so _____. • Question prompts for students: Can you please repeat that? (NEPF – IP.1.2; 2.1; 2.2; 3.1; 3.2; 5.3) 	<ul style="list-style-type: none"> • Provide learning tasks in which students can use illustrations or numbers to explain their understandings. • Model a predetermine dialogue structure for students to state and clarify their reasoning to a partner or small group and listen to the ideas of others to agree or disagree with reasons to ensure the participation of all students. • Provide students with sentence starters from a leveled list of scaffolding statements. Example: I think _____ because _____. I solved the problem by _____. • Question prompts for students: Can you say it another way? So, does that mean _____? (NEPF – IP.1.2; 2.1; 2.2; 3.1; 3.2; 5.3) 	<ul style="list-style-type: none"> • Provide learning tasks in which students can use numbers to explain their understandings. • Model consistently predetermine dialogue structures for students to state and clarify their reasoning to a partner or small group and listen to the ideas of others to agree or disagree with reasons to ensure the participation of all students. • Provide students with sentence starters from a leveled list of scaffolding statements. Example: My answer makes sense because _____. I hadn't thought about _____. • Question prompts for students: What's another way to look at the problem/ solution? What part do you understand? (NEPF – IP.1.2; 2.1; 2.2; 3.1; 3.2; 5.3)

Section 3B: Math Disciplinary Practices (continued)

Practice 1b: Make Sense of Problems and Persevere in Solving Them – Success Criteria

Success Criteria: How will students be able to **communicate or demonstrate** their learning of language and content in at **different language proficiency levels**? Examples:

<p>Entering/Emerging (Levels 1-2)</p>	<p>Developing/Expanding (Levels 3-4)</p>	<p>Bridging/Reaching (Levels 5-6)</p>
<p>Success Criteria</p> <p>Students will...</p> <ul style="list-style-type: none"> • Identify and state the academic vocabulary associated with the content. (e.g., properties, axioms, transformations, construction, functions) • Describe the mathematical content using expression, pictures, symbols, or artifacts (ex. slope, coordinate pairs, proof). <p>(NEPF – IP.1.3; 2.2; 3.4; 5.3)</p>	<p>Success Criteria</p> <p>Students will...</p> <ul style="list-style-type: none"> • Orally explain and produce a graphic representation (Pictures and/or numbers) of their strategy for solving a problem. • State some academic vocabulary in their explanation of one of the preferred student strategy. <p>(NEPF – IP.1.3; 2.2; 3.4; 5.3)</p>	<p>Success Criteria</p> <p>Students will...</p> <ul style="list-style-type: none"> • Orally explain, justify, and defend their problem solving strategies. • Use specific and technical academic vocabulary in their explanation, justification, and defense of one of the preferred student strategies. <p>Assessment Tool Assessing the 8 Mathematical Practices Rubric (NEPF – IP.1.3; 2.2; 3.4; 5.3)</p>

Section 3B: Math Disciplinary Practices (continued)

Practice 2a: Reason Abstractly and Quantitatively – Teacher Moves

Teacher Moves: What supports can teachers provide students at different proficiency levels to use language to interpret or make meaning of the content? Examples:

<p>Entering/Emerging (Levels 1-2)</p>	<p>Developing/Expanding (Levels 3-4)</p>	<p>Bridging/Reaching (Levels 5-6)</p>
<ul style="list-style-type: none"> • Provide scaffolded tasks for students to draw a picture of their solution and label it. • Orally Model and provide simple patterned oral and written sentence frames for students to emulate/copy basic mathematical expressions with a predetermined learning partner and to state the academic vocabulary associated with illustrated expression. • Provide students the opportunity to share with a partner or in a small group their thinking using sentence frames. Example: The numbers I can use to represent this problem are _____. The words I can use to represent this problem are _____. • Question prompts for students: What is the problem asking you to figure out? Which part of the problem makes sense? • Use tools to aid in grade level content. (NEPF – IP.1.2; 2.1; 2.2; 3.1; 3.2; 5.3) 	<ul style="list-style-type: none"> • Provide learning tasks in which students can use illustrations or numbers to explain their understandings. • Model a predetermine dialogue structure for students to state and clarify their reasoning to a partner or small group and listen to the ideas of others to agree or disagree with reasons to ensure the participation of all students. • Provide students with sentence starters from a leveled list of scaffolding statements. Example: I know _____ because _____. I learned _____. • Question prompts for students: What do the numbers in the problem represent? What do the words in the problem mean? (NEPF – IP.1.2; 2.1; 2.2; 3.1; 3.2; 5.3) 	<ul style="list-style-type: none"> • Provide learning tasks in which students can use numbers to explain their understandings. • Model consistently predetermine dialogue structures for students to state and clarify their reasoning to a partner or small group and listen to the ideas of others to agree or disagree with reasons to ensure the participation of all students. • Provide students with sentence starters from a leveled list of scaffolding statements. Example: A different way to find the answer is _____. I noticed that _____. • Question prompts for students: I hadn't thought about that... I think it is helpful to look at... (NEPF – IP.1.2; 2.1; 2.2; 3.1; 3.2; 5.3)

Section 3B: Math Disciplinary Practices (continued)

Practice 2b: Reason Abstractly and Quantitatively – Success Criteria

Success Criteria: How will students be able to **communicate or demonstrate their learning** of language and content in at **different language proficiency levels?** Examples:

<p style="text-align: center;">Entering/Emerging (Levels 1-2)</p>	<p style="text-align: center;">Developing/Expanding (Levels 3-4)</p>	<p style="text-align: center;">Bridging/Reaching (Levels 5-6)</p>
<p style="text-align: center;">Success Criteria</p> <p>Students will...</p> <ul style="list-style-type: none"> • Identify academic vocabulary associated with the lesson. (e.g., properties, axioms, transformations, construction, functions) • Describe mathematical lesson using pictures, symbols, or artifacts (e.g., slope, coordinate pairs, proof). <p>(NEPF – IP.1.3; 2.2; 3.4; 5.3)</p>	<p style="text-align: center;">Success Criteria</p> <p>Students will...</p> <ul style="list-style-type: none"> • Orally explain and produce a graphic representation of the concept in the lesson. (e.g., pictures, graphs, or numbers). • Use academic vocabulary in their explanation of a preferred student strategy. <p>(NEPF – IP.1.3; 2.2; 3.4; 5.3)</p>	<p style="text-align: center;">Success Criteria</p> <p>Students will...</p> <ul style="list-style-type: none"> • Orally explain their strategy using numbers and variables to solve problems. • Use academic vocabulary in their explanation of a preferred student strategy. <p>Assessment Tool Assessing the 8 Mathematical Practices Rubric (NEPF – IP.1.3; 2.2; 3.4; 5.3)</p>

Section 3B: Math Disciplinary Practices (continued)

Practice 3a: Construct Viable Arguments and Critique the Reasoning of Others – Teacher Moves

Teacher Moves: What supports can teachers provide students at different proficiency levels to use language to interpret or make meaning of the content? Examples:

<p>Entering/Emerging (Levels 1-2)</p>	<p>Developing/Expanding (Levels 3-4)</p>	<p>Bridging/Reaching (Levels 5-6)</p>
<ul style="list-style-type: none"> • Provide scaffolded tasks for students to draw a picture of their solution and to label it. • Provide simple patterned oral and written sentence frames for students to emulate/copy basic content provided with a predetermined learning partner. • Model the language of mathematical expression ratio examples, and then provide the task for students to label the mathematical expressions with a predetermined learning partner; have students state the academic vocabulary associated with the number or illustrated expression. • Provide sentence frames or sentence starters for students to use to access group discussion. Example: My answer is _____. My solution is _____. I think my error is here (point) • Question prompts for students: Can you show me where _____? (NEPF – IP.1.2; 2.1; 2.2; 3.1; 3.2; 5.3) 	<ul style="list-style-type: none"> • Provide learning tasks in which students can use illustrations or numbers to explain their understandings. • Model a predetermine dialogue structure for students to state and clarify their reasoning to a partner or small group and listen to the ideas of others to agree or disagree with reasons to ensure the participation of all students. • Provide students with sentence starters from a leveled list of scaffolding statements. Example: I used this strategy because _____. My answer is correct because _____. Your answer is incorrect because _____. • Question prompts for students: Can you explain how or why you did this? Why do you think ____ did _____? (NEPF – IP.1.2; 2.1; 2.2; 3.1; 3.2; 5.3) 	<ul style="list-style-type: none"> • Provide learning tasks in which students can use numbers to explain their understandings. • Model consistently predetermine dialogue structures for students to state and clarify their reasoning to a partner or small group and listen to the ideas of others to agree or disagree with reasons to ensure the participation of all students. • Provide students with sentence starters from a leveled list of scaffolding statements. Example: I agree/disagree with you because _____. I wonder if _____. I did this because _____. I think this is where you made your error _____ because _____. I can justify my answer by _____. • Question prompts for students: How do you know that? Do you agree with Johnny’s answer? Why? (NEPF – IP.1.2; 2.1; 2.2; 3.1; 3.2; 5.3)

Section 3B: Math Disciplinary Practices (continued)

Practice 3b: Construct Viable Arguments and Critique the Reasoning of Others – Success Criteria

Success Criteria: How will students be able to **communicate or demonstrate their learning** of language and content in at **different language proficiency levels?** Examples:

Entering/Emerging (Levels 1-2)	Developing/Expanding (Levels 3-4)	Bridging/Reaching (Levels 5-6)
<p style="text-align: center;">Success Criteria</p> <p>Students will...</p> <ul style="list-style-type: none"> • Identify academic vocabulary associated with the lesson. (e.g., properties, axioms, transformations, construction, functions) • Describe mathematical lesson using pictures, symbols, or artifacts (e.g., slope, coordinate pairs, proof). <p>(NEPF – IP.1.3; 2.2; 3.4; 5.3)</p>	<p style="text-align: center;">Success Criteria</p> <p>Students will...</p> <ul style="list-style-type: none"> • Orally explain and produce a graphic representation of the concept in the lesson. (e.g., pictures, graphs, or numbers). • Use academic vocabulary in their explanation of a preferred student strategy. <p>(NEPF – IP.1.3; 2.2; 3.4; 5.3)</p>	<p style="text-align: center;">Success Criteria</p> <p>Students will...</p> <ul style="list-style-type: none"> • Orally explain their strategy using numbers and variables to solve problems. • Use academic vocabulary in their explanation of a preferred student strategy. <p>Assessment Tool Assessing the 8 Mathematical Practices Rubric (NEPF – IP.1.3; 2.2; 3.4; 5.3)</p>

Section 3B: Math Disciplinary Practices (continued)

Practice 4a: Model with Mathematics – Teacher Moves

Teacher Moves: What supports can teachers provide students at different proficiency levels to use language to interpret or make meaning of the content? Examples:

<p>Entering/Emerging (Levels 1-2)</p>	<p>Developing/Expanding (Levels 3-4)</p>	<p>Bridging/Reaching (Levels 5-6)</p>
<ul style="list-style-type: none"> • Provide scaffolded tasks for students to draw a picture of their solution and to label it. • Provide simple patterned oral and written sentence frames for students to emulate/copy basic content provided with a predetermined learning partner. • Model the language of mathematical expression ratio examples, and then provide the task for students to label the mathematical expressions with a predetermined learning partner; have students state the academic vocabulary associated with the number or illustrated expression. • Provide sentence frames or sentence starters for students to use to access group discussion. Example: I drew _____. The graph shows _____. My answer is correct because _____. I used the _____ model to show my thinking about the problem. (NEPF – IP.1.2; 2.1; 2.2; 3.1; 3.2; 5.3) 	<ul style="list-style-type: none"> • Provide learning tasks in which students can use illustrations or numbers to explain their understandings. • Model a predetermine dialogue structure for students to state and clarify their reasoning to a partner or small group and listen to the ideas of others to agree or disagree with reasons to ensure the participation of all students. • Provide students with sentence starters from a leveled list of scaffolding statements. Example: I used this model because _____. I drew _____ because _____. • Question prompts for students: What picture can you draw to help you? What can you use for a model? (NEPF – IP.1.2; 2.1; 2.2; 3.1; 3.2; 5.3) 	<ul style="list-style-type: none"> • Provide learning tasks in which students can use numbers to explain their understandings. • Model consistently predetermine dialogue structures for students to state and clarify their reasoning to a partner or small group and listen to the ideas of others to agree or disagree with reasons to ensure the participation of all students. • Provide students with sentence starters from a leveled list of scaffolding statements. Example: I can explain my solution to others by _____. I have seen this before when _____. • Question prompts for students: What model did you use? Is there another way to represent that? (NEPF – IP.1.2; 2.1; 2.2; 3.1; 3.2; 5.3)

Section 3B: Math Disciplinary Practices (continued)

Practice 4b: Model with Mathematics – Success Criteria

Success Criteria: How will students be able to **communicate or demonstrate their learning** of language and content in at **different language proficiency levels?** Examples:

<p>Entering/Emerging (Levels 1-2)</p>	<p>Developing/Expanding (Levels 3-4)</p>	<p>Bridging/Reaching (Levels 5-6)</p>
<p>Success Criteria</p> <p>Students will...</p> <ul style="list-style-type: none"> • Identify academic vocabulary associated with the lesson. (e.g., properties, axioms, transformations, construction, functions) • Describe mathematical lesson using pictures, symbols, or artifacts (e.g., slope, coordinate pairs, proof). <p>(NEPF – IP.1.3; 2.2; 3.4; 5.3)</p>	<p>Success Criteria</p> <p>Students will...</p> <ul style="list-style-type: none"> • Orally explain and produce a graphic representation of the concept in the lesson. (e.g., pictures, graphs, or numbers). • Use academic vocabulary in their explanation of a preferred student strategy. <p>(NEPF – IP.1.3; 2.2; 3.4; 5.3)</p>	<p>Success Criteria</p> <p>Students will...</p> <ul style="list-style-type: none"> • Orally explain their strategy using numbers and variables to solve problems. • Use academic vocabulary in their explanation of a preferred student strategy. <p>Assessment Tool! Assessing the 8 Mathematical Practices Rubric</p> <p>(NEPF – IP.1.3; 2.2; 3.4; 5.3)</p>

Section 3B: Math Disciplinary Practices (continued)

Practice 5a: Use Appropriate Tools Strategically – Teacher Moves

Teacher Moves: What supports can teachers provide students at different proficiency levels to use language to interpret or make meaning of the content? Examples:

Entering/Emerging (Levels 1-2)	Developing/Expanding (Levels 3-4)	Bridging/Reaching (Levels 5-6)
<ul style="list-style-type: none"> • Provide scaffolded tasks for students to draw a picture of their solution and to label it. • Provide simple patterned oral and written sentence frames for students to emulate/copy basic content provided with a predetermined learning partner. • Model the language of mathematical expression ratio examples, and then provide the task for students to label the mathematical expressions with a predetermined learning partner; have students state the academic vocabulary associated with the number or illustrated expression. • Provide sentence frames or sentence starters for students to use to access group discussion. Example: I used _____ because _____. The best tool to use is _____. • Question prompts for students: Is this an example of a tool? How would you use this tool? (NEPF – IP.1.2; 2.1; 2.2; 3.1; 3.2; 5.3) 	<ul style="list-style-type: none"> • Provide learning tasks in which students can use illustrations or numbers to explain their understandings. • Model a predetermine dialogue structure for students to state and clarify their reasoning to a partner or small group and listen to the ideas of others to agree or disagree with reasons to ensure the participation of all students. • Provide students with sentence starters from a leveled list of scaffolding statements. Example: I used the _____ tool to solve the problem by _____. Can you tell me more about the tool that you used _____? Using a _____ shows us/can't show us a _____. • Question prompts for students: What can you use to help you solve this problem? What resources are available? (NEPF – IP.1.2; 2.1; 2.2; 3.1; 3.2; 5.3) 	<ul style="list-style-type: none"> • Provide learning tasks in which students can use numbers to explain their understandings. • Model consistently predetermine dialogue structures for students to state and clarify their reasoning to a partner or small group and listen to the ideas of others to agree or disagree with reasons to ensure the participation of all students. • Provide students with sentence starters from a leveled list of scaffolding statements. Example: This tool, _____ helps me prove my solution to others by _____. I agree/ disagree with _____'s choice _____ tool, but I chose _____ instead/also because _____. I could have used _____ (tool) to _____. • Question prompts for students: Why did you choose that tool to solve the problem? Is there a better tool that you can use? (NEPF – IP.1.2; 2.1; 2.2; 3.1; 3.2; 5.3)

Section 3B: Math Disciplinary Practices (continued)

Practice 5b: Use Appropriate Tools Strategically – Success Criteria

Success Criteria: How will students be able to **communicate or demonstrate** their learning of language and content in at **different language proficiency levels**? Examples:

Entering/Emerging (Levels 1-2)	Developing/Expanding (Levels 3-4)	Bridging/Reaching (Levels 5-6)
<p style="text-align: center;">Success Criteria</p> <p>Students will...</p> <ul style="list-style-type: none"> • Identify academic vocabulary associated with the lesson. (e.g., properties, axioms, transformations, construction, functions) • Describe mathematical lesson using pictures, symbols, or artifacts (e.g., slope, coordinate pairs, proof). <p>(NEPF – IP.1.3; 2.2; 3.4; 5.3)</p>	<p style="text-align: center;">Success Criteria</p> <p>Students will...</p> <ul style="list-style-type: none"> • Orally explain and produce a graphic representation of the concept in the lesson. (e.g., pictures, graphs, or numbers). • Use academic vocabulary in their explanation of a preferred student strategy. <p>(NEPF – IP.1.3; 2.2; 3.4; 5.3)</p>	<p style="text-align: center;">Success Criteria</p> <p>Students will...</p> <ul style="list-style-type: none"> • Orally explain their strategy using numbers and variables to solve problems. • Use academic vocabulary in their explanation of a preferred student strategy. <p>Assessment Tool Assessing the 8 Mathematical Practices Rubric</p> <p>(NEPF – IP.1.3; 2.2; 3.4; 5.3)</p>

Section 3B: Math Disciplinary Practices (continued)

Practice 6a: Attend to Precision – Teacher Moves

Teacher Moves: What supports can teachers provide students at different proficiency levels to use language to interpret or make meaning of the content? Examples:

<p>Entering/Emerging (Levels 1-2)</p>	<p>Developing/Expanding (Levels 3-4)</p>	<p>Bridging/Reaching (Levels 5-6)</p>
<ul style="list-style-type: none"> • Provide scaffolded tasks for students to draw a picture of their solution and to label it. • Provide simple patterned oral and written sentence frames for students to emulate/copy basic content provided with a predetermined learning partner. • Model the language of mathematical expression ratio examples, and then provide the task for students to label the mathematical expressions with a predetermined learning partner; have students state the academic vocabulary associated with the number or illustrated expression. • Provide sentence frames or sentence starters for students to use to access group discussion. Example: I used the term _____ when working with this problem. I didn't understand _____. The math term _____ means _____. I labeled it _____. <p>(NEPF – IP.1.2; 2.1; 2.2; 3.1; 3.2; 5.3)</p>	<ul style="list-style-type: none"> • Provide learning tasks in which students can use illustrations or numbers to explain their understandings. • Model a predetermine dialogue structure for students to state and clarify their reasoning to a partner or small group and listen to the ideas of others to agree or disagree with reasons to ensure the participation of all students. • Provide students with sentence starters from a leveled list of scaffolding statements. Example: I know my answer is accurate because _____. I used the label _____ because _____. • Questions to prompt students: Does your answer need a label in order to be precise? What terms should you use to be precise? <p>(NEPF – IP.1.2; 2.1; 2.2; 3.1; 3.2; 5.3)</p>	<ul style="list-style-type: none"> • Provide learning tasks in which students can use numbers to explain their understandings. • Model consistently predetermine dialogue structures for students to state and clarify their reasoning to a partner or small group and listen to the ideas of others to agree or disagree with reasons to ensure the participation of all students. • Provide students with sentence starters from a leveled list of scaffolding statements. Example: I used the mathematical term _____ to explain _____. My answer is _____ rather than _____ because _____. Questions to prompt students: Can you explain why you used significant digits for your answer? <p>(NEPF – IP.1.2; 2.1; 2.2; 3.1; 3.2; 5.3)</p>

Section 3B: Math Disciplinary Practices (continued)

Practice 6b: Attend to Precision – Success Criteria

Success Criteria: How will students be able to **communicate or demonstrate** their learning of language and content in at **different language proficiency levels**? Examples:

<p>Entering/Emerging (Levels 1-2)</p>	<p>Developing/Expanding (Levels 3-4)</p>	<p>Bridging/Reaching (Levels 5-6)</p>
<p>Success Criteria</p> <p>Students will...</p> <ul style="list-style-type: none"> • Identify academic vocabulary associated with the lesson. (e.g., properties, axioms, transformations, construction, functions) • Describe mathematical lesson using pictures, symbols, or artifacts (e.g., slope, coordinate pairs, proof). <p>(NEPF – IP.1.3; 2.2; 3.4; 5.3)</p>	<p>Success Criteria</p> <p>Students will...</p> <ul style="list-style-type: none"> • Orally explain and produce a graphic representation of the concept in the lesson. (e.g., pictures, graphs, or numbers). • Use academic vocabulary in their explanation of a preferred student strategy. <p>(NEPF – IP.1.3; 2.2; 3.4; 5.3)</p>	<p>Success Criteria</p> <p>Students will...</p> <ul style="list-style-type: none"> • Orally explain their strategy using numbers and variables to solve problems. • Use academic vocabulary in their explanation of a preferred student strategy. <p>Assessment Tool Assessing the 8 Mathematical Practices Rubric</p> <p>(NEPF – IP.1.3; 2.2; 3.4; 5.3)</p>

Section 3B: Math Disciplinary Practices (continued)

Practice 7a: Look For and Make Use of Structure – Teacher Moves

Teacher Moves: What supports can teachers provide students at different proficiency levels to use language to interpret or make meaning of the content? Examples:

<p>Entering/Emerging (Levels 1-2)</p>	<p>Developing/Expanding (Levels 3-4)</p>	<p>Bridging/Reaching (Levels 5-6)</p>
<ul style="list-style-type: none"> • Provide scaffolded tasks for students to draw a picture of their solution and to label it. • Provide simple patterned oral and written sentence frames for students to emulate/copy basic content provided with a predetermined learning partner. • Model the language of mathematical expression ratio examples, and then provide the task for students to label the mathematical expressions with a predetermined learning partner; have students state the academic vocabulary associated with the number or illustrated expression. • Provide sentence frames or sentence starters for students to use to access group discussion. Example: I tried _____. They are similar because _____? • Questions to prompt students: What do you notice? Is there a pattern? (NEPF – IP.1.2; 2.1; 2.2; 3.1; 3.2; 5.3) 	<ul style="list-style-type: none"> • Provide learning tasks in which students can use illustrations or numbers to explain their understandings. • Model a predetermine dialogue structure for students to state and clarify their reasoning to a partner or small group and listen to the ideas of others to agree or disagree with reasons to ensure the participation of all students. • Provide students with sentence starters from a leveled list of scaffolding statements. Example: I already know _____ so _____. This reminded me of _____. • Questions to prompt students: Have you done a similar type of problem before? (NEPF – IP.1.2; 2.1; 2.2; 3.1; 3.2; 5.3) 	<ul style="list-style-type: none"> • Provide learning tasks in which students can use numbers to explain their understandings. • Model consistently predetermine dialogue structures for students to state and clarify their reasoning to a partner or small group and listen to the ideas of others to agree or disagree with reasons to ensure the participation of all students. • Provide students with sentence starters from a leveled list of scaffolding statements. Example: I noticed the connection between _____ and _____. How is _____ related to _____? • Questions to prompt students: What do both problems have in common? What patterns do you see? What do you know about ___ that you can apply to this situation? (NEPF – IP.1.2; 2.1; 2.2; 3.1; 3.2; 5.3)

Section 3B: Math Disciplinary Practices (continued)

Practice 7b: Look For and Make Use of Structure – Success Criteria

Success Criteria: How will students be able to **communicate or demonstrate their learning** of language and content in at **different language proficiency levels?** Examples:

<p>Entering/Emerging (Levels 1-2)</p>	<p>Developing/Expanding (Levels 3-4)</p>	<p>Bridging/Reaching (Levels 5-6)</p>
<p>Success Criteria</p> <p>Students will...</p> <ul style="list-style-type: none"> • Identify academic vocabulary associated with the lesson. (e.g., properties, axioms, transformations, construction, functions) • Describe mathematical lesson using pictures, symbols, or artifacts (e.g., slope, coordinate pairs, proof). <p>(NEPF – IP.1.3; 2.2; 3.4; 5.3)</p>	<p>Success Criteria</p> <p>Students will...</p> <ul style="list-style-type: none"> • Orally explain and produce a graphic representation of the concept in the lesson. (e.g., pictures, graphs, or numbers). • Use academic vocabulary in their explanation of a preferred student strategy. <p>(NEPF – IP.1.3; 2.2; 3.4; 5.3)</p>	<p>Success Criteria</p> <p>Students will...</p> <ul style="list-style-type: none"> • Orally explain their strategy using numbers and variables to solve problems. • Use academic vocabulary in their explanation of a preferred student strategy. <p>Assessment Tool Assessing the 8 Mathematical Practices Rubric</p> <p>(NEPF – IP.1.3; 2.2; 3.4; 5.3)</p>

Section 3B: Math Disciplinary Practices (continued)

Practice 8a: Look For and Express Regularity in Repeated Reasoning – Teacher Moves

Teacher Moves: What supports can teachers provide students at different proficiency levels to use language to interpret or make meaning of the content? Examples:

<p>Entering/Emerging (Levels 1-2)</p>	<p>Developing/Expanding (Levels 3-4)</p>	<p>Bridging/Reaching (Levels 5-6)</p>
<ul style="list-style-type: none"> • Provide scaffolded tasks for students to draw a picture of their solution and to label it. • Provide simple patterned oral and written sentence frames for students to emulate/copy basic content provided with a predetermined learning partner. • Model the language of mathematical expression ratio examples, and then provide the task for students to label the mathematical expressions with a predetermined learning partner; have students state the academic vocabulary associated with the number or illustrated expression. • Provide sentence frames or sentence starters for students to use to access group discussion. Example: I wonder/noticed _____. The rule/pattern is _____. • Questions to prompt students: Is there a pattern? (NEPF – IP.1.2; 2.1; 2.2; 3.1; 3.2; 5.3) 	<ul style="list-style-type: none"> • Provide learning tasks in which students can use illustrations or numbers to explain their understandings. • Model a predetermine dialogue structure for students to state and clarify their reasoning to a partner or small group and listen to the ideas of others to agree or disagree with reasons to ensure the participation of all students. • Provide students with sentence starters from a leveled list of scaffolding statements. Example: The pattern/rule I noticed was _____ because _____. This is the same because _____. This is true because _____. Based on the information, I can conclude _____. • Questions to prompt students: How could this problem help you solve another? (NEPF – IP.1.2; 2.1; 2.2; 3.1; 3.2; 5.3) 	<ul style="list-style-type: none"> • Provide learning tasks in which students can use numbers to explain their understandings. • Model consistently predetermine dialogue structures for students to state and clarify their reasoning to a partner or small group and listen to the ideas of others to agree or disagree with reasons to ensure the participation of all students. • Provide students with sentence starters from a leveled list of scaffolding statements. Example: If _____ then _____. I generalize that _____. The trend of the data is _____ because _____. • Questions to prompt students: What generalizations can you make? Can you find a short cut to solve the problem? (NEPF – IP.1.2; 2.1; 2.2; 3.1; 3.2; 5.3)

Section 3B: Math Disciplinary Practices (continued)

Practice 8b: Look For and Express Regularity in Repeated Reasoning – Success Criteria

Success Criteria: How will students be able to **communicate or demonstrate** their learning of language and content in at **different language proficiency levels**? Examples:

<p style="text-align: center;">Entering/Emerging (Levels 1-2)</p>	<p style="text-align: center;">Developing/Expanding (Levels 3-4)</p>	<p style="text-align: center;">Bridging/Reaching (Levels 5-6)</p>
<p style="text-align: center;">Success Criteria</p> <p>Students will...</p> <ul style="list-style-type: none"> • Identify academic vocabulary associated with the lesson. (e.g., properties, axioms, transformations, construction, functions) • Describe mathematical lesson using pictures, symbols, or artifacts (e.g., slope, coordinate pairs, proof). <p>(NEPF – IP.1.3; 2.2; 3.4; 5.3)</p>	<p style="text-align: center;">Success Criteria</p> <p>Students will...</p> <ul style="list-style-type: none"> • Orally explain and produce a graphic representation of the concept in the lesson. (e.g., pictures, graphs, or numbers). • Use academic vocabulary in their explanation of a preferred student strategy. <p>(NEPF – IP.1.3; 2.2; 3.4; 5.3)</p>	<p style="text-align: center;">Success Criteria</p> <p>Students will...</p> <ul style="list-style-type: none"> • Orally explain their strategy using numbers and variables to solve problems. • Use academic vocabulary in their explanation of a preferred student strategy. <p>Assessment Tool <u>Assessing the 8 Mathematical Practices Rubric</u> (NEPF – IP.1.3; 2.2; 3.4; 5.3)</p>