

Math – Grade 7 – Unit 4 – ELL Scaffolds

	Student Learning Objective (SLO)		Language Objective		Language Needed
SLO: 1 CCSS: 7RP.3 WIDA ELDS: 1-3 Listening, Reading, Writing	Solve multi-step ratio and percent problems using proportional relationships (simple interest, tax, markups and markdowns, gratuities and commissions, fees, percent increase and decrease, percent error).		<u>Explain</u> orally and in writing how to solve multi-step problems using proportional relationships by with <i>the support of</i> Technology, Teacher Modeling , <i>charts and online multilingual glossary</i> . <i>Note: ELL students require additional language support through the use of Sentence Frame and starters, which provide language structure for longer mathematical explanations. Student Resource: http://www.mathsisfun.com/mathematics-language.html</i>		VU: Percent (of change), proportion, ratio, increase, decrease, final amount
					LFC: Comparative forms (how many more; greater than)
					LC: Varies by ELP level
	ELP 1	ELP 2	ELP 3	ELP 4	ELP 5
Language Objectives	Explain the solution in writing of oral and written multi-step problems using proportional relationships by explaining the solution in writing in L1 and/or use gestures, pictures and selected words.	Explain the solution in writing of oral and written multi-step problems using proportional relationships by explaining the solution in writing in L1 and/or use selected technical vocabulary in phrases and short sentences.	Explain the solution in writing of oral and written oral and written multi-step problems using proportional relationships by explaining the solution in writing using key vocabulary in simple sentences.	Explain the solution of oral and written multi-step problems using proportional relationships by explaining the solution in writing using key, technical vocabulary in expanded sentences.	Explain the solution in writing of oral and written multi-step problems using proportional relationships by explaining the solution in writing using technical vocabulary in complex sentences.
Learning Supports	Manipulatives Teacher Modeling Multilingual Math Glossary Cloze Sentences Word/Picture Wall L1 text and/or support Pictures/illustrations	Manipulatives Teacher Modeling Multilingual Math Glossary Sentence Frame Word/Picture Wall L1 text and/or support	Manipulatives Teacher Modeling Multilingual Math Glossary Sentence Starter Word Wall	Manipulatives Teacher Modeling Multilingual Math Glossary	Manipulatives Teacher Modeling

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	Student Learning Objective (SLO)		Language Objective		Language Needed
SLO: 2 CCSS: 7RP.3, 7.SP.1 WIDA ELDS: 1-3 Listening, Speaking, Reading, Writing	Distinguish between valid and invalid samples from a population by determining if the sample is representative of the subgroups within the population (e.g. if the class had 50% girls and the sample had 25% girls, then the number of girls was not representative of the whole population).		<u>Demonstrate understanding</u> of oral explanation in lecture or video by taking notes. Explain <u>orally and in writing</u> how to distinguish validity of samples from a population by determining if the sample is representative of the subgroups within the population. <i>Note: ELL students require scaffolded instruction to solve multi-step word problems. The following sample provides five levels of a scaffolded problem, which correlate to approximate grade levels. Teacher resource: http://insidemathematics.org/problems-of-the-month The link to this website doesn't work.</i>		VU: Valid, invalid, random, representative sample, subgroups, survey
					LFC: Prepositional phrases, embedded clauses, cause/effect transitional words.
					LC: Varies by ELP level
	ELP 1	ELP 2	ELP 3	ELP 4	ELP 5
Language Objectives	Demonstrate understanding by explaining orally and in writing how to distinguish validity of representative samples of a subgroup of a population in L1 and/or use gestures, pictures and selected words.	Demonstrate understanding by explaining orally and in writing how to distinguish validity of representative samples of a subgroup of a population in L1 and/or use selected technical vocabulary in phrases and short sentences.	Demonstrate understanding by explaining orally and in writing how to distinguish validity of representative samples of a subgroup of a population using key vocabulary in simple sentences.	Demonstrate understanding by explaining orally and in writing how to distinguish validity of representative samples of a subgroup of a population using key, technical vocabulary in expanded sentences.	Demonstrate understanding by explaining orally and in writing how to distinguish validity of representative samples of a subgroup of a population using technical vocabulary in complex sentences.
Learning Supports	Technology and Technological Resources Cloze Sentences Small group/triads White Board Word/Picture Wall L1 text and/or support Pictures/illustrations	Technology and Technological Resources Sentence Frame Small group/triads White Board Word/Picture Wall L1 text and/or support	Technology and Technological Resources Sentence Starter Small group/triads White Board Word Wall	Technology and Technological Resources Small group/triads White Board	Technology and Technological Resources Small group/triads White Board

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	Student Learning Objective (SLO)		Language Objective		Language Needed
SLO: 3 CCSS: 7.SP.1 7.SP.2 WIDA ELDS: 1-3 Listening, Speaking, Reading, Writing	Use random sampling to produce a representative sample, develop valid inferences about a population with an unknown characteristic of interest, and compare the variation in estimates using multiple samples of the same and different size.		Describe and explain orally and in writing how to use random sampling to produce a representative sample draw valid inferences about a population with an unknown characteristic of interest and compare variability in estimates using multiple samples of the same and different sizes using tables, graphs, and charts to compare data by conducting a poll following an <i>online guide, such as a Gizmo</i> .*		VU: Characteristic, data, inference random sampling method, validity
	*Source: http://www.explorelarning.com . See data analysis & probability (Populations and Samples). The link provided is to a commercial website that provides for a 30 day free trial but the service has to be purchased afterwards.				LFC: Comparatives (more/less than), quantifiers (twice as many), modals with infinitives (could be)
					LC: Varies by ELP level
	ELP 1	ELP 2	ELP 3	ELP 4	ELP 5
Language Objectives	Describe and explain orally and in writing how to draw inferences about a population and compare variability in L1 and/or use gestures, pictures and selected words.	Describe and explain orally and in writing how to draw inferences about a population and compare variability in L1 and/or use selected technical vocabulary in phrases and short sentences.	Describe and explain orally and in writing how to draw inferences about a population and compare variability using key vocabulary in simple sentences.	Describe and explain orally and in writing how to draw inferences about a population and compare variability using key, technical vocabulary in expanded sentences.	Describe and explain orally and in writing how to draw inferences about a population and compare variability using technical vocabulary in complex sentences.
Learning Supports	Manipulatives (tables, graphs, charts) Multilingual Math Glossary Cloze Sentences White Board Small group/triads Word/Picture Wall L1 text and/or support Pictures/illustrations	Manipulatives (tables, graphs, charts) Multilingual Math Glossary Sentence Frame Small group/triads White Board Word/Picture Wall L1 text and/or support	Manipulatives (tables, graphs, charts) Multilingual Math Glossary Sentence Starter Small group/triads White Board Word Wall	Manipulatives (tables, graphs, charts) Small group/triads White Board	Manipulatives (tables, graphs, charts) Small group/triads White Board

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	Student Learning Objective (SLO)		Language Objective		Language Needed
SLO: 4 CCSS: 7.SP.3 7.SP.4 WIDA ELDS: 1-3 Speaking, Reading, Writing	Visually and numerically compare the means and variations of two distinct populations (such as the mean height of different sports teams) to draw informal comparative inferences about measures of center and variability using graphical representations and statistical calculations.		<u>Explain</u> orally and in writing how to make comparative inferences of two populations using the mean absolute deviation <i>using graphical representations such as stem and leaf plots to visually demonstrate comparisons, and statistical calculations.</i>		VU: Absolute deviation, mean
					LFC: Comparative adjectives (more likely to, greater than, less than, equal to)
					LC: Varies by ELP level
	ELP 1	ELP 2	ELP 3	ELP 4	ELP 5
Language Objectives	Explain orally and in writing how to make comparative inferences of two populations using the mean absolute deviation in L1 and/or use gestures, pictures and selected words.	Explain orally and in writing how to make comparative inferences of two populations using the mean absolute deviation in L1 and/or use selected technical vocabulary in phrases and short sentences.	Explain orally and in writing how to make comparative inferences of two populations using the mean absolute deviation using key vocabulary in simple sentences.	Explain orally and in writing how to make comparative inferences of two populations using the mean absolute deviation using key, technical vocabulary in expanded sentences.	Explain orally and in writing how to make comparative inferences of two populations using the mean absolute deviation using technical vocabulary in complex sentences.
Learning Supports	Stem and leaf plots Math Journal Multilingual Math Glossary Cloze Sentences Small group/triads White Board Word/Picture Wall L1 text and/or support Pictures/illustrations	Stem and leaf plots Math Journal Multilingual Math Glossary Sentence Frame Small group/triads White Board Word/Picture Wall L1 text and/or support	Stem and leaf plots Math Journal Multilingual Math Glossary Sentence Starter Small group/triads White Board Word Wall	Stem and leaf plots Math Journal Multilingual Math Glossary Small group/triads White Board	Stem and leaf plots Math Journal Small group/triads White Board

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	Student Learning Objective (SLO)		Language Objective		Language Needed
SLO: 5 CCSS: 7.SP.5 WIDA ELDS: 1-3 Speaking, Reading, Writing	Interpret and express the likelihood of a chance event as a number between 0 and 1, relating that the probability of an unlikely event happening is near 0, a likely event is near 1, and 1/2 is neither likely nor unlikely.		Explain orally and in writing how to interpret and express the probability of a chance event as a number between 0 and 1 to represent likelihood <i>using a</i> Math Journal, Small group/triads <i>and</i> Manipulatives. http://www.mathsisfun.com/probability_line.html		VU: Probability, likely, unlikely
					LFC: Present tense form of verb <i>to be</i> , modals to express probability
					LC: Varies by ELP level
	ELP 1	ELP 2	ELP 3	ELP 4	ELP 5
Language Objectives	Explain orally and in writing how to interpret the probability of a chance event in L1 and/or use gestures, pictures and selected words.	Explain orally and in writing how to interpret the probability of a chance event in L1 and/or use selected technical vocabulary in phrases and short sentences.	Explain orally and in writing how to interpret the probability of a chance event using key vocabulary in simple sentences.	Explain orally and in writing how to interpret the probability of a chance event using key, technical vocabulary in expanded sentences.	Explain orally and in writing how to interpret the probability of a chance event using technical vocabulary in complex sentences.
Learning Supports	Manipulatives (probability continuum) Math Journal Multilingual Math Glossary Sentence Frame Small group/triads Word/Picture Wall L1 text and/or support Pictures/illustrations	Probability continuum Math Journal Multilingual Math Glossary Sentence Frame Small group/triads Word/Picture Wall L1 text and/or support	Probability continuum Math Journal Multilingual Math Glossary Sentence Starter Small group/triads Word Wall	Probability continuum Math Journal Small group/triads	Probability continuum Math Journal Small group/triads

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	Student Learning Objective (SLO)		Language Objective		Language Needed
SLO: 6 CCSS: 7RP.3, 7.SP.6 7.G.1 WIDA ELDS: 1-3 Speaking, Reading, Writing	Conduct experimental probability events that are both uniform (rolling a number cube multiple times) and non-uniform (tossing a paper cup to see if it lands up or down) to collect and analyze data to make predictions for the approximate relative frequency of chance events.		Conduct uniform and non-uniform chance events <u>and collect and analyze data to make predictions</u> about their approximate relative frequency <i>using a Partner work, Manipulatives, videos and a Word Wall.</i> Khan Academy: unfair coins https://www.youtube.com/watch?v=RI874OSJp1U		VU: Expected, probability, relative frequency, “unfair coin”
					LFC: Future tense
					LC: Varies by ELP level
	ELP 1	ELP 2	ELP 3	ELP 4	ELP 5
Language Objectives	Make predictions about the approximate relative frequency of uniform and non-uniform chance events in L1 and/or use gestures, pictures and selected words.	Make predictions about the approximate relative frequency of uniform and non-uniform chance events in L1 and/or use selected technical vocabulary in phrases and short sentences.	Make predictions about the approximate relative frequency of uniform and non-uniform chance events using key vocabulary in a series of simple sentences.	Make predictions about the approximate relative frequency of uniform and non-uniform chance events using key, technical vocabulary in expanded sentences.	Make predictions about the approximate relative frequency of uniform and non-uniform chance events using technical vocabulary in complex sentences.
Learning Supports	Manipulatives (dice, marbles, spinners) Multilingual Math Glossary Partner work Cloze Sentences Word/Picture Wall L1 text and/or support Pictures/illustrations	Manipulatives (dice, marbles, spinners) Multilingual Math Glossary Partner work Word/Picture Wall L1 text and/or support Sentence Frame	Manipulatives (dice, marbles, spinners) Multilingual Math Glossary Partner work Sentence Starter Word Wall	Manipulatives (dice, marbles, spinners) Math Journal	Manipulatives (dice, marbles, spinners) Math Journal

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	Student Learning Objective (SLO)		Language Objective		Language Needed
SLO: 7 CCSS: 7.SP.7 WIDA ELDS: 1-3 Listening, Speaking, Reading, Writing	Develop uniform and non-uniform theoretical probability models Teacher Modeling (the word through is misspelled in the description.) by listing the probabilities of all possible outcomes in an event, for instance, the probability of the number cube landing on each number being 1/6. Then, conduct an experiment of the event using frequencies to determine the probabilities of each outcome and use the results to explain possible sources of discrepancies in theoretical and experimental probabilities.		After conducting an experiment, <u>explain</u> the possible sources of discrepancies in the theoretical and experimental probabilities orally and in writing <i>using charts, tables, or graphs, Manipulatives and a Small group/triads.</i>		VU: Frequencies, random, marbles
					LFC: Present and past tense of verbs to be, to have
					LC: Varies by ELP level
	ELP 1	ELP 2	ELP 3	ELP 4	ELP 5
Language Objectives	After conducting an experiment, explain the possible sources of discrepancies orally and in writing in L1 and/or use gestures, pictures and selected words.	After conducting an experiment, explain the possible sources of discrepancies orally and in writing in L1 and/or use selected technical vocabulary in phrases and short sentences.	After conducting an experiment, explain the possible sources of discrepancies orally and in writing using key, technical vocabulary in a series of simple sentences.	After conducting an experiment, explain the possible sources of discrepancies orally and in writing using key, technical vocabulary in expanded sentences.	After conducting an experiment, explain the possible sources of discrepancies orally and in writing using precise vocabulary in complex sentences.
Learning Supports	Manipulatives (charts, tables, graphs) Math Journal Multilingual Math Glossary Cloze Sentences Small group/triads Word/Picture Wall L1 text and/or support	Manipulatives (charts, tables, graphs) Math Journal Multilingual Math Glossary Sentence Frame Small group/triads Word/Picture Wall L1 text and/or support	Manipulatives (charts, tables, graphs) Math Journal Multilingual Math Glossary Sentence Starter Small group/triads Word Wall	Manipulatives (charts, tables, graphs) Multilingual Math Glossary Small group/triads	Manipulatives (charts, tables, graphs) Small group/triads

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	Student Learning Objective (SLO)		Language Objective		Language Needed
SLO: 8 CCSS: 7.SP.8 WIDA ELDS: 1-3 Listening, Speaking, Reading, Writing	Design a simulation of a compound probability event and determine the sample space using organized lists, tables, and tree diagrams, calculate the fractional probabilities for each outcome in the sample space, and conduct the simulation using the data collected to determine the frequencies of the outcomes in the sample space.		<u>Demonstrate comprehension</u> by taking notes to a lecture or video and <u>explain</u> orally and in writing how to design and conduct a simulation of a compound probability event and determine the sample space using a tree diagram, organized lists, and tables , calculate the fractional probabilities to determine frequency for each outcome <i>with</i> Manipulatives, Word Wall, Math Journal <i>and model</i> .		VU: Compound probability, fractional probability, frequency <hr/> LFC: Conditional sentences (if/then) <hr/> LC: Varies by ELP level
	ELP 1	ELP 2	ELP 3	ELP 4	ELP 5
Language Objectives	Demonstrate comprehension by taking notes to a lecture or video and explain orally and in writing how to find the probability of a compound event in L1 and/or use gestures, pictures and selected words.	Demonstrate comprehension by taking notes to a lecture or video and explain orally and in writing how to find the probability of a compound event in L1 and/or use selected technical vocabulary in phrases and short sentences.	Demonstrate comprehension by taking notes to a lecture or video and explain orally and in writing how to find the probability of a compound event using key, technical vocabulary in a series of simple sentences.	Demonstrate comprehension by taking notes to a lecture or video and explain orally and in writing how to find the probability of a compound event using key vocabulary in expanded sentences.	Demonstrate comprehension by taking notes to a lecture or video and explain orally and in writing how to find the probability of a compound event using technical vocabulary in complex sentences.
Learning Supports	Manipulatives Math Journal Partially Completed Solutions Cloze Sentences Small group/triads Word/Picture Wall L1 text and/or support Pictures/illustrations	Manipulatives Math Journal Partially Completed Solutions Sentence Frame Small group/triads Word/Picture Wall L1 text and/or support	Manipulatives Small group/triads Math Journal Sentence Starter Word Wall	Manipulatives Math Journal Small group/triads	Manipulatives Math Journal Small group/triads