English Language Development Unit

Calgary Board of Education

This template is a synthesis of Susana Dutro's English Language Development etc. Sheltered Instructional Observation Protocol, Dr. Roessingh's Learning By Design web-based unit planning, Alberta Education Benchmarks, AISI Area V Differentiated Learning Template, Universal Design for Learning, and Understanding by Design.

Date: _____October 2009   Language Proficiency Level:___Level 1s/2s ____Author(s): Liz Spittal, Liz Ferros, Kathryn Scheurwater, Cheryl Schaub,
Program of Studies/Locally Developed Course:____Intro to Math 15/ LEAD   Horizontal/Vertical (circle one)
Unit/ Theme: _____The Magic of Numbers _____

PART A: OVERVIEW OF UNIT

General and Learning Outcomes and Skills

1. Language Learning Function (s):Describe, Classify, Compare, Contrast

2.Benchmark Competencies and Language Strand Outcomes:

Reading	Writing	Speaking	Listening
• *Comprehends some high frequency, utility and subject-specific vocabulary; e.g. number, quantity, add, subtract, multiply, greater than* • *Identifies basic conventions and comprehends different word endings indicating verb tenses or plural; e.g. thousands, tens, ones.* • *Demonstrates comprehension of literal and sequenced sentences explanations.* • *Demonstrates comprehension of sentences in a paragraph using common time markers and conjunctions; e.g. First write the number, then write the words for the number, then identify the place value for each digit.* • *Comprehends a series of simple sentences in texts containing supports such as headings, captions and illustrations; e.g. This is four times as many as two. There are five groups. Each group has four circles.*	• *Uses basic utility and subject-specific vocabulary related to familiar objects, actions and topics; e.g., The answer to five times three is fifteen.* • *Writes declarative and negative sentences. E.g. We use numbers to understand quantity We use numbers to count money.* • *Copies words and phrases with increasing accuracy and transfers to numerical symbols.* • *Produces text using familiar words and phrases to complete forms and graphic organizers, label diagrams and follow models with support; e.g. The Frayer's model for characteristics of quantity. Labelling Base ten manipulatives to understand place value.*	• *Expresses ideas, asks and answers questions, makes statements using more subject-specific vocabulary. e.g. One hundred is greater than ten.* • *Uses patterned, predictable language structures including simple affirmative and negative statements, questions and commands; e.g. Adding three is like taking the total and subtracting three. Is addition the opposite of subtraction?* • *Uses common pronouns, adjectives, nouns and verbs in present tense; e.g.I see numbers on my way to school.* • *Uses message replacement, everyday expressions and questions to interact and initiate conversations; e.g., I don't understand multiplying, I don't get it*	• *Responds to the chaining of two high frequency commands; eg. Write the number for one thousand and state a number it is greater than.* • *Demonstrates understanding of subject-specific vocabulary e.g. quantity, place value.* • *Demonstrates understanding of compound sentences in context e.g.The number 1 000 can be written as one thousand or ten one hundreds.* • *Demonstrates understanding of common nouns, verbs in present tense, pronouns and prepositions; e.g. Take the camera and you will look for things that show numbers..* • *Relies on visual cues, direct instructional and demonstrations to make meaning of oral texts; e.g. The students look at a Frayer's model graphic organizer to classify the characteristics of quantity.* • *Distinguishes phonemes with slower pace and emphatic speech; e.g. thousands and fifteen and fifty. Understands words that describe an action. E.g. multiply*

3.Alberta's Program of Study/ Locally Developed Course/Content Learning Outcomes: Introduction to Math 15 Locally Developed Course
General Outcomes: Students will develop a number sense of whole numbers. 2. Students will recognize, interpret, verbalize and create visual representation of mathematical information.
Specific Outcomes: Express ordinal and cardinal numbers, Count in tens, hundreds, thousands, Understand place value, Recognize and understand the base ten system, Apply numerical operations, Identify more, less, and equal to.

4.Technology Skills/ICT Outcomes: Students will communicate through multimedia. 4.1 Select and use, independently, multimedia capabilities for presentations in various subject areas.

5.Academic Skills: Utilize and manage information, interpret data, information, use multi-media to convey ideas, practice concentration and memory skills, use a variety of problem solving approaches, build communication skills.

6. Engagement and Relevance	7. Essential Question
For the teacher: Students must develop number sense to move up the spiral curriculum of mathematics. They must acquire the English code for mathematical understanding. The students will need an understanding of numbers to survive and ultimately be successful in our North American culture. For the Student: Most students and parents value education. Along with literacy, they also value numeracy. They might be more engaged because of the multiple modalities for addressing the topic of numeracy and the opportunities to choose content that helps personalize their learning.	What are numbers? What is magical about numbers? Where do we see numbers? What would the world be like without numbers? How do we use numbers?

8. Profile of your Learners	9. Pre-assessment/Background Knowledge
(From Benchmarks) An English language learner is learning to: understand basic classroom activities with visual support; respond to yes/no questions; label and use pictures to communicate; use survival vocabulary and fragmented speech; compile words and phrases for daily living (food, clothing); know some words and phrases associated with academics; write independently; develop sentence sense; imitate/copy phrase and sentence patterns; accrue sight vocabulary of functional words; can name letters and know most corresponding sounds; use some conventions (such as capital letters and periods)	Pre-assessment: After viewing an introductory video clip ask the essential question, "What is a number? Put the sentence frame up on the board or white board or smart board. Have students take turns filling in the blanks. Observe for conceptual understanding and linguistic readiness. Record observations. Have a running observation record about (anecdotally) students/ language and content performance. Assessment about what students know about numbers under 20 p. 21 GQDM-Small

10. Opportunities for Differentiation/Personalized Learning	11. Evidence of Student Learning/Assessment
Essential questions and inquiry based lessons Deep curriculum clarity, Multi-modality and multi-media approach (digital cameras, manipulatives, picture books, movies) Flexible groupings from total to small to pairs to individual Respectful challenging tasks for all plus challenge tasks for those who are ready Pre and ongoing assessment to adjust pace, tasks and instruction Choice in process and product	Students will: • Complete a Frayer's Graphic Organizer for Quantity that expresses reasonable descriptions of the concept • Display progress with number sense and language functions, forms, and vocabulary as demonstrated in total group, small group, pair, and alone work • Apply understanding of how numbers are used by creating a poster • Demonstrate visually, symbolically, and three-dimensionally varying sizes, numbers, and quantities. • Demonstrate understanding of greater than, less than, bigger, smaller on an exercise sheet • Express understanding of operations in oral discussions • Complete sentence frames with accurate numerical calculations • Project: Create a quiz and answer key demonstrating proficient use of the language outcomes and the mathematical outcomes

12. Resources	13. Other
Good Questions: Great Ways to Differentiate Math by Marion Small Why do we have big numbers" by Jill Bever and Sheilah Currie 100 Days of School by Trudy Harris How big is a million? Big Ideas from Dr. Small Oxford Illustrated Math Dictionary Vocabulary for early grades in Math-appendices	Digital Cameras SMART files re: numeracy Internet access for videos

Manipulatives-Appendices	
Base Ten Blocks, paper, pencils, dice, cards.	
Flash Cards	

PART B: LESSONS AT A GLANCE

	Lesson 1*	Lesson 2*	Lesson 3*	Lesson 4*	Lesson 5*
Openers: and Materials	Video – The Clan of the Cave Bear http://abel.math.harvard.edu/~knill/mathmovies/swf/clan.html (Challenge: The answer is 5. What is the question?)	Video from You Tube "18 Wheels on a Big Rig" (Challenge: Good Questions to Differentiate Math p.18 Choose two of these numbers….)	A Day as a Photographer Need digital cameras, usb cords, computers, memory sticks, colour printers, poster paper	Video - Stand and Deliver http://abel.math.harvard.edu/~knill/mathmovies/swf/standanddeliver.html (video more suitable for secondary?) (Tell about a time you would use ½)	Picture Books Why do we have big numbers? 10 Little Chickens by Jill Bever and Sheilah Currie (Nelson Mathematics) (Yes, I used picture books in junior and high school) (35$ for 6 pack from Nelson Education)
Tasks: Grouping	Discuss numbers Describe counting Create sentence frame bulletin board for describing numeracy.	Broaden definition of counting and numbers to real world Understand math is everywhere not just in a class	Walk about with digitals – take pictures of where you see #'s Learn basic digital photography Teach basic downloading of photos and printing.	Work in small groups to fill in Frayer's Model re: quantity, numbers, small numbers, big numbers Counting	Large group counting to 50 noting different patterns Students in small groups write a simple story using story frames and transferable ordinal numbers for sequence
Overarching Function (Dutro 3.7)	Describe, Classify, Compare and Contrast	Describe, Classify, Compare and Contrast	Describe, Classify, Compare and Contrast	Describe, Classify, Compare and Contrast	Describe, Classify
Specific Language Function (Dutro 3.7 and Tab 5)	5.8 Describe physical characteristics (Numbers, counting)	5.8 Describe physical characteristics (numbers, counting)	5.8 Describe physical characteristics (Quantity, Numbers)	5.8 Describe physical characteristics (Quantity, small, big) Explain classification of ideas	5.8 Describe action of counting to 50 Describe using order with ordinal numbers Retell actions and events in chronological order
Linguistic Tools:: Grammatical Forms (Dutro 2.14 and Tabs 5,6,7) Using sentence frames with nouns and adjectives	What is a number? A number is _____ and _____. What is counting? Counting is _____.	Tell me where you see numbers? I see numbers _____(prep) _____(nouns)	Numbers are in _____. Numbers can be _____. Numbers are _____. Numbers tell us _____. Numbers help us _____.	Graphic Organizer: Frayer's Model of characteristics and non-characteristics.	First, _____next,_____, along came _____ now, _____, then, _____and finally _____.
Vocabulary: transferable (mortar)	is, and, a, an, what	tell, me, where, you, see	are, in, can, be, tell, us, help, explain, show, describe	Characteristics, examples, non-examples, Definition	First, next, third, now, then, and finally
Vocabulary: content specific (bricks)	number, counting, five, ten, twenty, one	numbers, even, odd,	numbers, quantity	Quantity, big, small, fractions, integers, decimals, algebra, counting, money, time	Numbers and words from 1-50. That makes
Assessment: Pre, Ongoing, Formative, Summative	Fill in pre assessment observations on students as they attempt to fill in the sentence frame. Spreadsheet in D2L with math	Discussion-assessing listening and speaking	Students print and post photos on poster paper Do not evaluate	Completed Frayer's Model worksheet	

	Lesson 6*	Lesson 7*	Lesson 8*	Lesson 9*	Lesson 10*
outcomes					
Openers: and Materials	Picture Book 100 Days of School by Trudy Harris Story/Illustration Frame (2-10$ from Amazon) Use numbers to describe quantities Represent numbers in multiple ways This does touch on addition	Base Ten Blocks Dr. Small's inquiry Teaching idea – Dr Small P. 16 (words for place value)and choice of teaching ideas 2.1-2.4 (Challenge p. 21,22 GQDM) This would likely take two classes Graphic Organizer	"Can you find the Number" worksheet Pencil crayons SMART technology SMART file (pages 1-2) to introduce form (in D2L shell under math) Assessment on place value using last lesson's graphic organizer	Video Once Upon a Time (millions) http://www.math.harvard.edu/~knill/mathmovies/swf/onceuponatime_millions.html SMART technology SMART file (pages 3-4) Large number flashcards (MS Word document)	Dictation sheet (MS Word document – Appendix C) SMART file (pages 4-6) Large number flashcards (one set per of students).
Tasks: Grouping	Read book to students Note patterns of 100 on chart paper/white paper/smart board In pairs students develop and record their own combinations of 100 and 1000	Using manipulatives to understand multiples of tens and periods and place value of numbers up to 1000	Use previously learned numbers (0-999) to introduce and practice form: _Noun(s) has / have number count noun_ Student work in pairs	Total group instruction and choral work Use and understand the value of numbers 1000 – 9 999 999 999.	Whole group listening Individual work writing sentences using frames. Teacher circulates and provides feedback. Assign talking/thinking homework. Find the population of your country and Canada
Overarching Function (Dutro 3.7)	Express Cause and Effect	Describe, Classify, Compare and Contrast	Describe, Compare, Contrast	Describe, Compare, Contrast	Describe, Compare, Contrast
Specific Language Function (Dutro 3.7 and Tab 5)	Summarize event or process using Cause and Effect Make predictions	Classify and make generalizations based on evidence	Describe physical attributes	Describe physical attributes	Describe physical attributes of a place
Linguistic Tools:: Grammatical Forms (Dutro 2.14 and Tabs 5,6,7) Using sentence frames with nouns and adjectives	If _____, what do you get ____. And…	Inquiry questions: How did you know how many digits were in your number? What is a period? How do we read large numbers? The answers to theses questions could be in a graphic organizer. The blocks represent ___thousands, ___hundreds, ____tens, ____ones. The number is___. The words are_____.	_Noun(s) has / have number count noun(s)_. Choral: _Noun(s) has / have number count noun_.	_Noun(s) has / have number count noun(s)_.	How many _people_ does _city_ have? _City_ has _number_ people.
Vocabulary: transferable (mortar)	What do you get?	How did you know, how many, how much? Why? Tell me. Show me.	has/have	has/have	has/have
Vocabulary: content specific	What do you get? Numbers up to and including 100 (gr. 2)	digit, place value, numerals, ones, tens, hundreds, thousands,	Numbers up to one thousand place value vocabulary → ones, tens,	Numbers 0-1,000,000 place value vocabulary → ones, tens, hundreds,	Numbers zero to one billion place value vocabulary → ones, tens, hundreds, thousands,

(bricks)	Numbers up to and including 1000 (gr. 3)	many, periods, patterns, blocks, symbols, unit cube, rod, flat	hundreds, thousands, ten thousands, hundred thousands, millions, ten millions, hundred millions, billions	thousands, ten thousands, hundred thousands, millions, ten millions, hundred millions, billions	ten thousands, hundred thousands, millions, ten millions, hundred millions, billions
Assessment: Pre, Ongoing, Formative, Summative	Students represent #s up to 100 or up to 1000	Assess language understanding of plurals: tens, etc.	Assessment: Short quiz on yesterday's Place Value using Graphic Organizer Assess speaking skills in choral reciting of choral sentence frame	Assess correct use of has/have	Students write five sentences using sentence frame Teacher circulates and provides feedback

	Lesson 11	Lesson 12	Lesson 13	Lesson 14	Lesson 15
Openers: and Materials	Country Populations handouts (information gap) SMART file (pages 4, 7 – for demonstration)	Magazines, newspapers, flyers Poster paper, markers SMART file (pages 4, 8-9) Link to online newspaper Rubric	Metre Stick Small pieces of paper with many different numbers on them for students to choose	Video Little Big League (words and math) http://www.math.harvard.edu/~knill/mathmovies/swf/league.html Map for symbols T-Chart for words and symbols Cards	Video Simpsons-Word Problems http://www.math.harvard.edu/~knill/mathmovies/swf/bartproblem.html Large Number Line on SMART board or White board (This could be two lessons) CARDS (Challenge: GQDM p.42,43 operations)
Tasks: and Groupings	Discussion of thinking/talking homework Students work in pairs to help each other fill in information gaps Use and understand numbers 0 – 9 999 999 999. Practice the form: *Noun(s) has / have number count noun*	Apply knowledge of large numbers to everyday life occurrences. Assignment of poster project. Students work individually. Could take two classes. Rubric in SMART files in Appendices.	Estimating tasks and Comparing Quantities Greater than, less than.	Introduce operations of numbers, expressions and equations Read words for operation symbols on semantic map Large group discussion-questions below. Demonstrate writing of expressions/equations for words Students complete T-Chart Emphasis is on reading and writing symbolic expressions not solving operations Do not get into multiplication/division yet	Introducing addition and subtraction through the number line. Addition and Subtraction (maybe SMART board) Number Line to 20-Tell me all the ways you can get to 20. Addition and Subtraction 'undo' each other. Like buttons 16 cards Use a number of cards to reach a target no. Goal to get rid of cards. Three styles of problems: start unknown ?+8=13, change unknown 5+?=13 and result unknown 5+8=? Give cards and have students represent these three types of problems
Overarching Function (Dutro 3.7)	Describe, Classify, Compare	Describe, Classify, Compare	Compare and Contrast	Describe, Classify, Compare and Contrast	Describe, Classify, Compare and Contrast
Specific Language Function (Dutro 3.7 and Tab 5)	Describe physical attributes of a place	Describe attributes (quantity) of objects in space.	5.8 Compare quantities and predict	5.10 Describe Action	5.10 Describe Action
Linguistic Tools:: Grammatical Forms (Dutro 2.14 and Tabs 5,6,7) Using sentence frames with nouns and adjectives	How many *people* does *country* have? *Country* has *number* people	A *noun* is *large number*. A *noun* has *large number*.	If a meter stick is _____ where is _____? Example – If a meter stick is like a number line and 0 is on one end and 100 is o the other end, where is 50? Can you guess my number: Which number is greater? Which number is	What do we do with numbers? We _____ (verb) them. What are the numbers doing? What do numbers do? Tell me how you use numbers? I use numbers (when, to) _____. How do we order numbers?	_____ plus _____equals _____ and is the same as _____ minus _____equals _____

			less? What number is greater than__? What number is less than__? I have ___ You have ___. ____ is greater than ____.	Teacher models an operation, ask…What am I doing? How do we write actions?	
Vocabulary: transferable (mortar)	How many? does	A noun has large number. is/are has/have	if, where, is, on, at, is, and, other, Can you guess, my, which, what, is less, greater	with, do, we, doing, use, when, models, what, order	and, is, the same as, row, column
Vocabulary: content specific (bricks)	Use and understand numbers 0 – 9 999 999 999. Practice the form	numbers	metre stick, estimating, doubles, half, end, number line, greater than, less than	operations, multiplication, division, addition, subtraction, regrouping, equal, answer, solution, ordinals	and, is the same as, sum, plus, minus, difference, increase, decrease, more, go up, go down, less, compare, taking away, equals
Assessment Pre, Ongoing, formative,	Assess speaking/pronunciation. If needed create assessment of sentences using has/have.	Poster project rubric included		Check T-charts for correctness	

Lesson 16		Lesson 17
Openers: and Materials	Multiplication and Division Before watching the video, ask "What is multiplication?" "Why do we multiply?" Video – Father of the Bride (hotdogs) http://abel.math.harvard.edu/~knill/mathmovies/swf/fatherbride.html Show me multiplication. (Whole group – students go to white board Or if too risky, have them do this in small groups with placement) Anything is acceptable. Video It's a Mad Mad World (division) http://www.math.harvard.edu/~knill/mathmovies/swf/madmadworld.html (Could be many lessons)	Summative Project-Students given choice of three options to demonstrate understanding. Base Ten Blocks, paper, pencils, dice, cards.
Tasks: and Grouping	P. 160 ELL Math solutions Use arrays as a representation Teacher with whole group discuss many world examples, such as: There are 3 cars. Each car has 4 wheels. There are 12 wheels altogether. There are 5 KitKat bars, Each bar has 4 pieces. There are ____ pieces altogether. There are ___ boxes of pop cans. Each box has 12 cans. There are ____ cans altogether. Give the frame below. There are _____ _____ altogether. The class creates new statements together using the frame listed above. In pairs complete the following challenge. (Write up included in supplementary materials) A bag of hotdog buns has ____ buns. A package of wieners has _____ wieners. Without opening any packages or bags, how might you get equal amounts of buns and wieners? Show this with numbers and with words. Either adding to the placemat or creating their own challenge using the same format and frame as the hot dog challenge. (ie: CD's and CD packages) Use the placemats as a pre-assessment of what students already now about May begin a new placemat (if this has not been used as a pre-assessment) or add-to the initial placemat. Students add more ways of representing multiplication.	Summative Project A. Students choose whether to demonstrate visually, symbolically, or with manipulatives. the answers to the following questions: Show me how large 1000 is. Tell me how we use big numbers (at least 3 ways) Explain how to find the answer to forty five plus eight. Explain why eighty one divided by nine is nine. Each individual should be assessed but could alone, in pairs, or small groups depending on climate of classroom B. Students create a quiz complete with answers demonstrating all that they have learned about numbers and operations.
Overarching Function (Dutro 3.7)	Describe, Classify, Compare and Contrast	
Specific Language Function(Dutro 3.7 and Tab 5)	5.10 Describe Action	

Linguistic: Grammatical Forms (Dutro 2.14 and Tabs 5,6,7) Using sentence frames with nouns and adjectives	This is _____ times as many as _____. There are _____ _____. Each _____ has _____ _____. There are _____ _____ altogether. Example: There are 3 cars. Each car has 4 wheels. There are 12 wheels altogether.	
Vocabulary: transferable (mortar)	groups, is, are, each, altogether	
Vocabulary: content specific (bricks)	twice, half, three, four, double, triple, quadruple, divide, multiply, multiple, groups, pair, dozen, product, quotient	
Assessment Pre, ongoing, summative		

PART C: DETAILED LESSON PLANS

Functions, Forms, Vocabulary	Lesson # _____1_____
Specific Language Function:	Describe the physical Characteristics of magnitude of numbers.
Language Tools: Forms and Vocabulary	
Grammatical Forms Grammatical Forms: Strategic, Discourse, Socio-linguistic, Linguistic, Semantics, Syntax Prompts, Responses, Sentence Frames	What is a number? A number is _____ and _____. A number is _____ and _____. A number has _____. We use numbers to _____. Counting is _____. There is are _____ (number word) _____(noun). Describe numbers. Discussion skills will have been previously been taught.
Vocab Transferable to all other areas: (mortar)	is, and, a, an, what, label, compare, describe, how much, how many
Content Specific: (bricks)	number, one, two, three, etc…, label, compare, describe, how much, how many, counting
Instructional Sequence	
Opening State objective / Engaging / Relevance/Essential Question	Big Idea Math: What is a number Why did we first need numbers How did counting evolve Big Idea language: Describing numbers in the real world Warm-up: Video – Clan of the Cave Bear http://abel.math.harvard.edu/~knill/mathmovies/swf/clan.html
I Do Instructional and Practice	Today and the next few days we are going to explore, what is a number, the need for numbers and how do we use numbers. Before the video clip, ask students to turn to their elbow partner and discuss the above questions. Give them the sentence frames... A number is _____ and _____. A number has _____. We use numbers to _____.
I/ We Do Instructional and Practice	Intro to video – Here is a possible explanation of how numbers were first used. What is

	counting. Show them the sentence frame, Counting is _____. Task: With an overhead or SMART board – teacher flashes a dot card (in supplementary materials) briefly and asks students to show on their fingers the corresponding quantity and match it to the respective number word. Repeat. (Could have a pocket chart or teacher represent using a three column T- chart which includes dots, number word and number symbol).
You Do Structured Independent Practice	Student uses numbers 1 – 10 and must complete the sentence frames for each number. Sentence frame: There is are _____ (number word) _____(noun).
Assessment (Summative/ Formative)	At a glance (spot) Pre-assess for background knowledge around numbers and symbolic representation
Wrap-up	Student share sentence frames to whole group.
Reflection	