TLC - Operational Sense Assessment and Continuum

	One-to-one correspondence	Subitizing	Magnitude	Cardinality	Part/whole relationship	Hierarchical Inclusion	Commutative/ Associative	Equivalence (Compensation)	Unitizing	Place Value
Overview	Say one number for each item counted	Perceive amounts without counting (10-frame, dot cards, rekenreks)	which group has more (without counting)	last number said shows how many	separation of parts in addition, parts in subtraction, inverse relationship between addition and subtraction	smaller numbers are part of bigger numbers *Smaller numbers are a part of bigger numbers, -if you take 1 from a group of 6 you have 5*	(commutative) the order of the numbers does not matter i.e. 1+5 = 5+1 (associative) when adding 3 or more numbers, can be regrouped without changing the sum	-the act of taking from one number and giving to another to maintain equivalence -See parts of the whole and can compensate (5+1 =6 then, 2+4=6, add 1 to 4 and take 1 from 5)	Twenty is made up of 2 sets of 10 -2 represents 2 groups	understanding that the placement of a number determines the value
Assessment Tasks Question	1, 3	1	7	2	1, 3, 5, 6, 7	2, 4, 7, 8, 5, 6	2, 5, 6	2, 4, 8, 6	8	6, 9
Teaching Strategies/ Next Steps	Instruct student on one to one correspondence Practice rote counting Stop when student makes an error counting Asking questions such as: What number comes after _? What is one more than _? Use base ten blocks to model 2-digit numbers focusing on relating the models to the ways that the numbers are written	Ask students to compare 1 digit number orally Ask students to build models for numbers and compare numbers Explicit teaching of the terms, greater than , less than and equal too Ask students to model the numbers with manipulatives and	Number lines -move manipulatives or their bodies along number line to represent different quantities -talk about which way you have to move along number line Review “What’s one more? What’s one less?” -use fingers -use manipulatives -use number	Subitizing activities (dot cards, rekenreks, fingers, 10 frames, etc) Counting sets of objects, asking how many Count objects into a container and label with a number to show how many Skip count concrete and abstract	Ask the student how many markers does Sandy have? (establishing the whole) -What are the two colours of markers? (establishing the 2 parts) -Do we know how many of one colour? What do we need to find out? Show visual fact families Part-part-whole problem solving questions	One-to-one correspondence Ask students to count and say last number Skip counting Counting on or back from a number Whole- part relationship activities Student asked to count some objects (seven) and put them in a container. Then a person takes some out (three), covers the container with the remaining, and asks how many are	Instruct students on the addends of 10 (0, 10, 1, 9) Sorting math facts using placemats (more than, less than, same as) Ask students to show these addends of 10 using a ten-frame and two-colour counters or two different colour unifix cubes Ask students to write the corresponding equations when using manipulatives to show their addends of 10 Ask students to practice making oral statements	Using known facts (e.g.,5+5, helps to solve 5+6) to solve unknown facts Use models to represent facts (rekenrek or ten frames Two 10 frames with two-toned counters -“show me this number. Show me another way.” -put two 10 frames beside one another with = in middle Missing addend questions Flexible place value tasks (e.g., 10 tens =100, so 20 tens must = 200, what is	Math talks to explicitly teach that 10 ones = 1 group of 10, 10 groups of ten =100 etc) Use word problems to create concrete groups (e.g., you have 20 cookies. Can you put them into 4 equal groups? Math talks (using visuals pics of groups of 2s, 3s, 5s, 10s, etc) Rolling to 100 dice game (roll dice, add on and bundle	Instruct student on the difference between tens and ones using number 11-19 Focus instruction on what is a ten and what is a one Ask students to group a pile of manipulatives into a ten frame and describe it using words tens and one (example: 12 is 1 ten 2 ones) Use unifix cubes into ten stick and ones Ask students to model number 24 and 42

	Have students determine 1 -less -1 more than a given number	comparative language to describe the numbers	line -use word problems (with real life relevance) -extend to two, three, etc more/less	amounts and tell how many Count on (dice games) Count back (around the circle counting, whiteboard counting, dice games counting back from a number)	Use known facts to problem solve (e.g., doubles, doubles plus 1)	remaining.	that include the two addends and 10 as the answer (ex. I know that 4+6 =10). Instruct student on practice with three addend addition with the make 10 strategy using manipulatives (ten-frames, unifix cubes) Ask students to practice making written statements that include reasoning about a strategy	12 tens?) and (42 is the same as 4 tens, 2 ones but it can also be seen as 3 tens and 12 ones)	groups of 10 either with popsicle sticks or base 10 rods) Math talks using jumps of 10 (both adding and subtracting) Math talks using jumps of 100 (both adding and subtracting) Addition and subtraction problems using a unitizing strategy (e.g., 25+20, being able to count on 2 more tens from 25)	Have the student orally explain the difference between the two numbers (students should state that 42 is greater, because it has more tens) Have students represent numbers in standard, expanded and base 10 form (with manipulatives or drawing) to understand the importance of the placement of the digit