Assessment of Grade 3 Numeracy
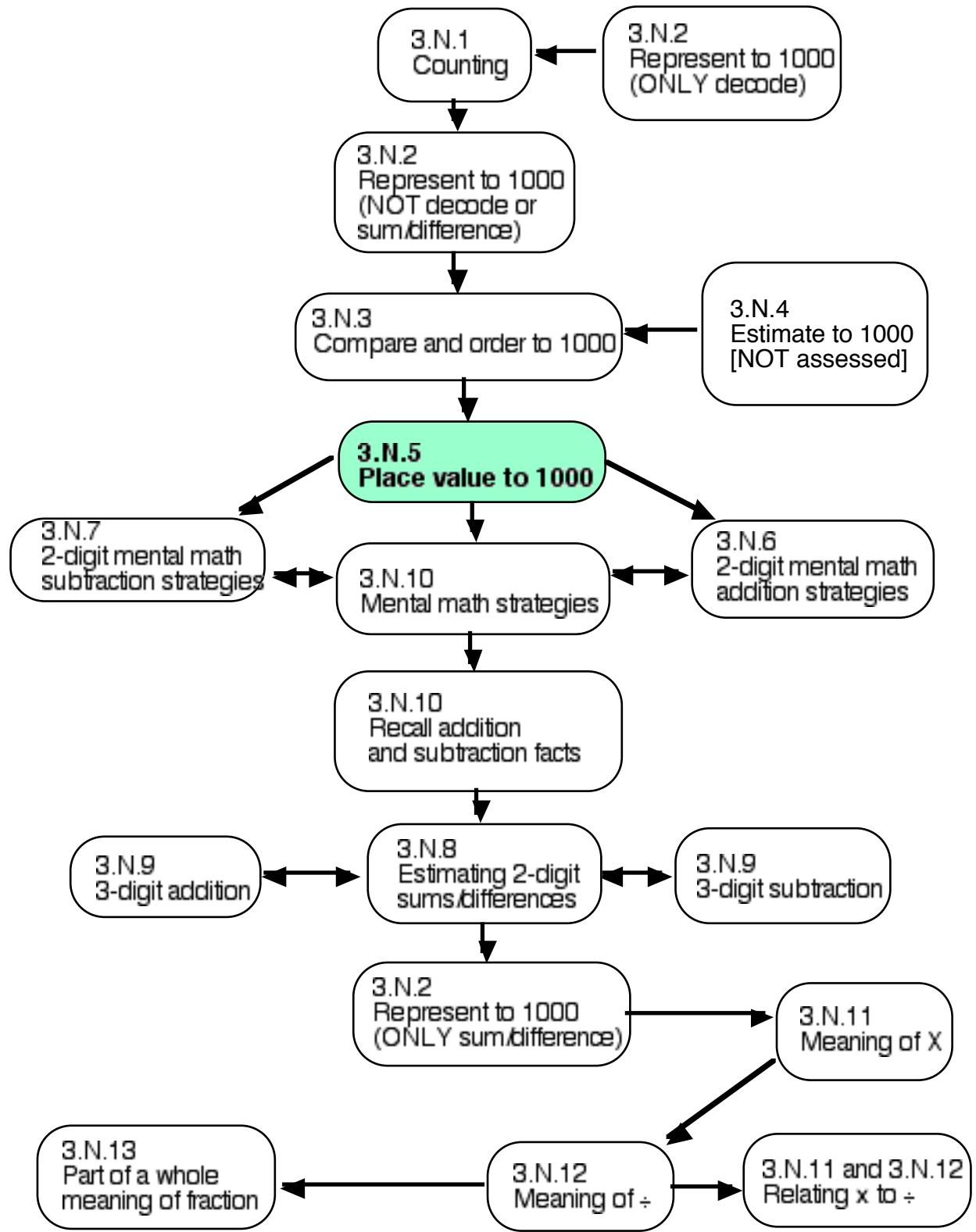
The assessment of Grade 3 Numeracy is organized on the basis of a **C**oncepts, **A**lgorithms, **S**kills **H**ierarchy of development (a CASH map). This map lays out a sequence for assessing as well as teaching.

Note that outcome 3.N.4 (estimate to 1000) is not assessed because the outcome is not critical enough.

3.N.1. Say the number sequence forward and backward from 0 to 1000 by • 5s, 10s, or 100s using any starting point • 25s using starting points that are multiples of 25	**3.N.2.** Represent and describe numbers to 1000, concretely, pictorially, and symbolically.
3.N.3. Compare and order numbers to 1000.	**3.N.4.** Estimate quantities less than 1000 using referents.
3.N.5. Illustrate, concretely and pictorially, the meaning of place value for numerals to 1000.	**3.N.6.** Describe and apply mental mathematics strategies for adding two 2-digit numerals, such as • adding from left to right • taking one addend to the nearest multiple of ten and then compensating • using doubles
3.N.7. Describe and apply mental mathematics strategies for subtracting two 2-digit numerals, such as • taking the subtrahend to the nearest multiple of ten and then compensating • thinking of addition • using doubles	**3.N.8.** Apply estimation strategies to predict sums and differences of two 2-digit numerals in a problem-solving context.
3.N.9. Demonstrate an understanding of addition and subtraction of numbers with answers to 1000 (limited to 1-, 2-, and 3-digit numerals) by • using personal strategies for adding and subtracting with and without the support of manipulatives • creating and solving problems in contexts that involve addition and subtraction of numbers concretely, pictorially, and symbolically.	**3.N.10.** Apply mental mathematics strategies and number properties, such as • using doubles • making 10 • using the commutative property • using the property of zero • thinking addition for subtraction to recall basic addition facts to 18 and related subtraction facts.

3.N.11.	3.N.12.
Demonstrate an understanding of multiplication to 5 × 5 by • representing and explaining multiplication using equal grouping and arrays • creating and solving problems in context that involve multiplication • modelling multiplication using concrete and visual representations, and recording the process symbolically • relating multiplication to repeated addition • relating multiplication to division	Demonstrate an understanding of division by • representing and explaining division using equal sharing and equal grouping • creating and solving problems in context that involve equal sharing and equal grouping • modelling equal sharing and equal grouping using concrete and visual representations, and recording the process symbolically • relating division to repeated subtraction • relating division to multiplication **(limited to division related to multiplication facts up to 5 × 5)**
3.N.13.	
Demonstrate an understanding of fractions by • explaining that a fraction represents a portion of a whole divided into equal parts • describing situations in which fractions are used • comparing fractions of the same whole with like denominators	

Grade 3 CASH map

3.N.1
Counting

3.N.2
Represent to 1000
(ONLY decode)

3.N.2
Represent to 1000
(NOT decode or
sum/difference)

3.N.3
Compare and order to 1000

3.N.4
Estimate to 1000
[NOT assessed]

3.N.5
Place value to 1000

3.N.7
2-digit mental math
subtraction strategies

3.N.10
Mental math strategies

3.N.6
2-digit mental math
addition strategies

3.N.10
Recall addition
and subtraction facts

3.N.9
3-digit addition

3.N.8
Estimating 2-digit
sums/differences

3.N.9
3-digit subtraction

3.N.2
Represent to 1000
(ONLY sum/difference)

3.N.11
Meaning of X

3.N.13
Part of a whole
meaning of fraction

3.N.12
Meaning of ÷

3.N.11 and 3.N.12
Relating x to ÷

Summary of results

3.N.1 (counting)
_____ Emergent knowledge (total score of 7 or less)
_____ Low level developed knowledge (total score between 8 and 16 inclusive)
_____ Mid level developed knowledge (total score between 17 and 25 inclusive)
_____ High level developed knowledge (total score of 26 or more)

3.N.2 (represent to 1000) <u>NOT decode or sum/difference</u>
_____ Emergent knowledge (total score of 2 or less)
_____ Low level developed knowledge (total score between 3 and 4 inclusive)
_____ Mid level developed knowledge (total score between 5 and 7 inclusive)
_____ High level developed knowledge (total score of 8 or more)

3.N.2 (represent to 1000: ONLY decode)
_____ Emergent knowledge (total score of 4 or less)
_____ Low level developed knowledge (total score between 5 and 7 inclusive)
_____ Mid level developed knowledge (total score between 8 and 11 inclusive)
_____ High level developed knowledge (total score of 12 or more)

3.N.2 (represent to 1000: ONLY sum/difference)
_____ Emergent knowledge (total score of 1 or less)
_____ Low level developed knowledge (total score between 2 and 3)
_____ Mid level developed knowledge (total score between 4 and 5 inclusive)
_____ High level developed knowledge (total score of 6 or more)

3.N.3 (compare and order to 1000)
_____ Emergent knowledge (total score of 3 or less)
_____ Low level developed knowledge (total score between 4 and 8 inclusive)
_____ Mid level developed knowledge (total score between 9 and 12 inclusive)
_____ High level developed knowledge (total score of 13 or more)

3.N.5 (place value to 1000)
_____ Emergent knowledge (total score of 6 or less)
_____ Low level developed knowledge (total score between 7 and 12 inclusive)
_____ Mid level developed knowledge (total score between 13 and 20 inclusive)
_____ High level developed knowledge (total score of 21 or more)

3.N.6 (2-digit mental math addition strategies)
_____ Emergent knowledge (total score of 2 or less)
_____ Low level developed knowledge (total score between 3 and 6 inclusive)
_____ Mid level developed knowledge (total score between 7 and 10 inclusive)
_____ High level developed knowledge (total score of 11 or more)

3.N.7 (2-digit mental math subtraction strategies)
_____ Emergent knowledge (total score of 1 or less)
_____ Low level developed knowledge (total score between 2 and 4 inclusive)
_____ Mid level developed knowledge (total score between 5 and 7)
_____ High level developed knowledge (total score of 8 or more)

3.N.8 (estimating 2-digit sums/differences)
____ Emergent knowledge (total score of 2 or less)
____ Low level developed knowledge (total score between 3 and 4 inclusive)
____ Mid level developed knowledge (total score between 5 and 6 inclusive)
____ High level developed knowledge (total score of 7 or more)

3.N.9 (3-digit addition)
____ Emergent knowledge (total score of 2 or less)
____ Low level developed knowledge (total score between 3 and 5 inclusive)
____ Mid level developed knowledge (total score between 6 and 9 inclusive)
____ High level developed knowledge (total score of 10 or more)

3.N.9 (3-digit subtraction)
____ Emergent knowledge (total score of 2 or less)
____ Low level developed knowledge (total score between 3 and 5 inclusive)
____ Mid level developed knowledge (total score between 6 and 9 inclusive)
____ High level developed knowledge (total score of 10 or more)

3.N.10 (recall addition and subtraction facts)
____ Emergent knowledge (total score of 1 or less)
____ Low level developed knowledge (total score between 2 and 4 inclusive)
____ Mid level developed knowledge (total score between 5 and 6 inclusive)
____ High level developed knowledge (total score of 7 or more)

3.N.10 (mental math strategies)
____ Emergent knowledge (total score of 3 or less)
____ Low level developed knowledge (total score between 4 and 6)
____ Mid level developed knowledge (total score between 7 and 11 inclusive)
____ High level developed knowledge (total score of 12 or more)

3.N.11 (meaning of x)
____ Emergent knowledge (total score of 3 or less)
____ Low level developed knowledge (total score between 4 and 7 inclusive)
____ Mid level developed knowledge (total score between 8 and 12 inclusive)
____ High level developed knowledge (total score of 13 or more)

3.N.11 and 3.N.12 (relating multiplication and division)
____ Emergent knowledge (total score of 3 or less)
____ Low level developed knowledge (total score between 4 and 8 inclusive)
____ Mid level developed knowledge (total score between 9 and 13 inclusive)
____ High level developed knowledge (total score of 14 or more)

3.N.12 (meaning of ÷)
____ Emergent knowledge (total score of 4 or less)
____ Low level developed knowledge (total score between 5 and 8 inclusive)
____ Mid level developed knowledge (total score between 9 and 15 inclusive)
____ High level developed knowledge (total score of 16 or more)

3.N.13 (part of a whole meaning of fraction)
____ Emergent knowledge (total score of 3 or less)
____ Low level developed knowledge (total score between 4 and 6 inclusive)
____ Mid level developed knowledge (total score between 7 and 10 inclusive)
____ High level developed knowledge (total score of 11 or more)

Instructions.

- Do as indicated for each task. The order of listing of the assessment items DOES NOT indicate the order of assessing or teaching. Refer to the CASH map for direction on sequencing.

- Ensure that the student understands what you are expecting him/her to do but DO NOT help the student by giving hints or answers to a task.

- For scoring a student response (see example below), write a 0, 1, 2, or 3 (sometimes more than 3) in the appropriate response slot.
  - _____ 0: Has errors in saying number words from 5 to 10.
  - _____ 1: Says number words without error from 5 to 10.
  - _____ 2: Says number words without error from 5 to 20.
  - _____ 3: Says number words without error from 5 to 30.

- For observations (see below), deduct .25 or .5 if the student is hesitant in responding to a task. Add .25 or .5 if the student responds with confidence. If the student self-corrects, no point is deducted or added. Use your judgment on deciding this for each task. The matter has to do with what the student does MOSTLY on a particular task.
  - ___ Hesitant
  - ___ Self-corrects
  - ___ Confident

- If there is an additional question indicated for a task, ask it and record the student's answer. Follow the scoring instructions attached to the additional question.

- Record any other observations you deem noteworthy.

- Calculate the total score for assessing a particular outcome by adding the student response values for the tasks and adding/deducting any observation scores. Write the total score in the indicated place at the end of the tasks.

- Use the total score to determine which level (emergent, low level developed, . . .) the student is in for the outcome. Place a check mark in the appropriate slot in the summary page (see example below).
  - _____ Emergent knowledge (total score of 2 or less)
  - _____ Low level developed knowledge (total score between 3 and 4 inclusive)
  - _____ Mid level developed knowledge (total score between 5 and 7 inclusive)
  - _____ High level developed knowledge (total score of 8 or 9)

- When determining which level the student is at for an outcome also include any relevant information obtained from 'Other observations' to help determine the level.

Assessment for 3.N.1 (counting)

ITEM 1:
- Say 85. Ask student to skip count by 5's to 140 from 85 on.
- Say 275. Ask student to skip count by 5's to 320 from 275 on.
- Say 850. Ask student to skip count by 5's to 910 from 850 on.

_____ 0: Has error(s) in each task.	
_____ 1: Has error(s) in two of the three tasks.	___ Hesitant
_____ 2: Has error(s) in one of the three tasks.	___ Self-corrects
_____ 3: Has no errors.	___ Confident

Other observations

ITEM 2:
- Say 150. Ask student to skip count by 5's backwards to 90.
- Say 410. Ask student to skip count by 5's backwards to 365.
- Say 900. Ask student to skip count by 5's backwards to 870.

_____ 0: Has error(s) in each task.	
_____ 1: Has error(s) in two of the three tasks.	___ Hesitant
_____ 2: Has error(s) in one of the three tasks.	___ Self-corrects
_____ 3: Has no errors.	___ Confident

Other observations

ITEM 3:
- Say 80. Ask student to skip count by 10's to 160 from 80 on.
- Say 265. Ask student to skip count by 10's to 320 from 265 on.
- Say 852. Ask student to skip count by 10's to 912 from 852 on.

_____ 0: Has error(s) in each task.	
_____ 1: Has error(s) in two of the three tasks.	___ Hesitant
_____ 2: Has error(s) in one of the three tasks.	___ Self-corrects
_____ 3: Has no errors.	___ Confident

Other observations

ITEM 4:
- Say 150. Ask student to skip count by 10's backwards to 90.
- Say 415. Ask student to skip count by 10's backwards to 365.
- Say 904. Ask student to skip count by 10's backwards to 854.

_____ 0: Has error(s) in each task.	
_____ 1: Has error(s) in two of the three tasks.	___ Hesitant
_____ 2: Has error(s) in one of the three tasks.	___ Self-corrects
_____ 3: Has no errors.	___ Confident

Other observations

ITEM 5:
- Say 300. Ask student to skip count by 100's backwards to 0.
- Say 700. Ask student to skip count by 100's backwards to 400.
- Say 900. Ask student to skip count by 100's backwards to 500.

_____ 0: Has error(s) in each task.	
_____ 1: Has error(s) in two of the three tasks.	___ Hesitant
_____ 2: Has error(s) in one of the three tasks.	___ Self-corrects
_____ 3: Has no errors.	___ Confident

Other observations

ITEM 6:
- Say 75. Ask student to skip count by 25's to 150.
- Say 450. Ask student to skip count by 25's to 525.
- Say 800. Ask student to skip count by 25's to 975.

_____ 0: Has error(s) in each task.	
_____ 1: Has error(s) in two of the three tasks.	___ Hesitant
_____ 2: Has error(s) in one of the three tasks.	___ Self-corrects
_____ 3: Has no errors.	___ Confident

Other observations

ITEM 7:
- Say 175. Ask student to skip count by 25's backwards to 75.
- Say 525. Ask student to skip count by 25's backwards to 450.
- Say 950. Ask student to skip count by 25's backwards to 825.

_____ 0: Has error(s) in each task.	
_____ 1: Has error(s) in two of the three tasks.	___ Hesitant
_____ 2: Has error(s) in one of the three tasks.	___ Self-corrects
_____ 3: Has no errors.	___ Confident

Other observations

ITEM 8:
- Present student with eight nickels. Ask student to tell you how many cents the nickels are worth.
- Present student with 12 dimes. Ask student to tell you how many cents the dimes are worth.
- Present student with 9 quarters. Ask student to tell you how many cents the quarters are worth.
- Present student with 5 loonies. Ask student to tell you how many cents the loonies are worth.
- Present student with 4 nickels, 6 dimes, and 3 quarters. Ask student to tell you how many cents the coins are worth.

_____ 0: Has error(s) in each task.	
_____ 1: Has error(s) in four of the five tasks.	___ Hesitant
_____ 2: Has error(s) in three of the five tasks.	___ Self-corrects
_____ 3: Has error(s) in two of the five tasks.	___ Confident
_____ 4: Has error(s) in one of the five tasks.	
_____ 5: Has no errors.	

Other observations

ITEM 9:
- Present student with the number sequence: 3, 8, 13, 18, 23, 28. Ask student what the skip counting pattern is.
- Present student with the number sequence: 17, 27, 37, 47, 57. Ask student what the skip counting pattern is.
- Present student with the number sequence: 303, 403, 503, 603. Ask student what the skip counting pattern is.
- Present student with the number sequence: 75, 100, 125, 150, 175, 200. Ask student what the skip counting pattern is.

_____ 0: Cannot describe any of the skip counting patterns.	
_____ 1: Can describe one of the skip counting patterns.	___ Hesitant
_____ 2: Can describe two of the skip counting patterns.	___ Self-corrects
_____ 3: Can describe three of the skip counting patterns.	___ Confident
_____ 4: Can describe all four of the skip counting patterns.	

Other observations

TOTAL SCORE _____

Assessment for 3.N.2 (represent to 1000) <u>NOT decode or sum/difference</u>

<table>
<tr><td colspan="2">ITEM 1:
• Provide student with ten-base 10 flats, ten base-10 ten-sticks, and 10 units. Ask student to build/show 145.
• Provide student with ten-base 10 flats, ten base-10 ten-sticks, and 10 units. Ask student to build/show 378.
• Provide student with ten-base 10 flats, ten base-10 ten-sticks, and 10 units. Ask student to build/show 870.</td></tr>
<tr><td>_____ 0: Cannot do any of the tasks correctly.
_____ 1: Does one task correctly.
_____ 2: Does two tasks correctly.
_____ 3: Does all three tasks correctly.</td><td>___ Hesitant
___ Self-corrects
___ Confident</td></tr>
<tr><td colspan="2">Other observations</td></tr>
</table>

<table>
<tr><td colspan="2">ITEM 2:
Provide student with ten loonies, ten quarters, ten dimes, ten nickels, and ten pennies.
• Ask student to show 78 with the coins.
• Ask student to show 78 with the coins in a different way from before.
• Ask student to show 297 with the coins.
• Ask student to show 297 with the coins in a different way from before.
• Ask student to show 739 with the coins.
• Ask student to show 739 with the coins in a different way from before.</td></tr>
<tr><td>_____ 0: Cannot do any of the tasks correctly.
_____ 1: Does one task correctly.
_____ 2: Does two tasks correctly.
_____ 3: Does three tasks correctly.
_____ 4: Does four tasks correctly.
_____ 5: Does five tasks correctly.
_____ 6: Does all six tasks correctly.</td><td>___ Hesitant
___ Self-corrects
___ Confident</td></tr>
<tr><td colspan="2">Other observations</td></tr>
</table>

TOTAL SCORE _____

Assessment for 3.N.2 (represent to 1000: ONLY decode)

<u>ITEM 1:</u>
Show student a card having the numerals 127, 285, 670, and 939 on it. Ask student to say the counting word for each numeral on the card.

_____ 0: Has 4 errors.	
_____ 1: Has 3 errors.	___ Hesitant
_____ 2: Has 2 errors.	___ Self-corrects
_____ 3: Has 1 error.	___ Confident
_____ 4: Has no errors.	

Other observations

<u>ITEM 2:</u>
Show student a card having the number words one hundred sixty-seven, six hundred eighty-three, eight hundred fifty-four, nine hundred twenty. Ask student to say the counting word for each number word on the card.

_____ 0: Has 4 errors.	
_____ 1: Has 3 errors.	___ Hesitant
_____ 2: Has 2 errors.	___ Self-corrects
_____ 3: Has 1 error.	___ Confident
_____ 4: Has no errors.	

Other observations

<u>ITEM 3:</u>
Show student a card having the numerals 20, 50, 90 on it. Ask student to write the number word for each numeral on the card.

_____ 0: Has 3 errors.	
_____ 1: Has 2 errors.	___ Hesitant
_____ 2: Has 1 error.	___ Self-corrects
_____ 3: Has no errors.	___ Confident

Other observations

<u>ITEM 4:</u>
Show student a card having the numerals 300, 600, 800 on it. Ask student to write the number word for each numeral on the card.

_____ 0: Has 3 errors.	
_____ 1: Has 2 errors.	___ Hesitant
_____ 2: Has 1 error.	___ Self-corrects
_____ 3: Has no errors.	___ Confident

Other observations

TOTAL SCORE _____

Assessment for 3.N.2 (represent to 1000: SUM/DIFFERENCE only)

ITEM 1:
Provide students with the example: using addition, 137 is131 + 6.
- Ask student to write 246 as an addition of two numbers.
- Ask student to write 475 as an addition of two numbers.
- Ask student to write 689 as an addition of two numbers.

_____ 0: Cannot do any of the tasks correctly. _____ 1: Does one task correctly. _____ 2: Does two tasks correctly. _____ 3: Does all three tasks correctly. NOTE: DO NOT ACCEPT a result such as 245+1 or 244 + 2. If the student gives this type of result (+1 or +2), ask the student to write without using +1 or +2. Also the student needs to use a different approach each time (e.g. can't use +10 every time). Allow retry if student does the above.	____ Hesitant ___ Self-corrects ___ Confident
Other observations	

ITEM 2:
Provide students with the example: using subtraction, 156 is 169 - 13.
- Ask student to write 241 as a subtraction of two numbers.
- Ask student to write 478 as a subtraction of two numbers.
- Ask student to write 957 as a subtraction of two numbers.

_____ 0: Cannot do any of the tasks correctly. _____ 1: Does one task correctly. _____ 2: Does two tasks correctly. _____ 3: Does all three tasks correctly. NOTE: NOTE: DO NOT ACCEPT a result such as 242 - 1 or 243 - 2. If the student gives this type of result (+1 or +2), ask the student to write without using +1 or +2. Also the student needs to use a different approach each time (e.g. can't use -10 every time). Allow retry if student does the above.	____ Hesitant ___ Self-corrects ___ Confident
Other observations	

TOTAL SCORE _____

Assessment for 3.N.3 (Compare and order to 1000)

ITEM 1:
- Show student the list of numerals: 145, 83, 167, 195, 231, 242. Tell student there is an error in the order. Ask student to find it.
- Show student the list of numerals: 203, 297, 311, 308, 395, 444. Tell student there is an error in the order. Ask student to find it.
- Show student the list of numerals: 484, 490, 602, 583, 791, 846. Tell student there is an error in the order. Ask student to find it.
- Show student the list of numerals: 670, 705, 771, 888, 832, 946. Tell student there is an error in the order. Ask student to find it. Ask student to explain why it is an error.

_____ 0: Cannot find/incorrect in finding of any of the errors.	
_____ 1: Finds one error correctly.	___ Hesitant
_____ 2: Finds two errors correctly.	
_____ 3: Finds three errors correctly.	___ Self-corrects
_____ 4: Finds all four errors correctly.	___ Confident
_____ 5: Explains why error is an error satisfactorily.	

Other observations

ITEM 2:
- Show student the list: 83, 156, 192, ____, 217, 293. Tell student the numbers are in order of size. Ask student to tell you a number that could be in the blank space.
- Show student the list: 175, ___, 284, 395, 425, 793. Tell student the numbers are in order of size. Ask student to tell you a number that could be in the blank space.
- Show student the list: 876, ___, 654, 621, 529. Tell student the numbers are in order of size. Ask student to tell you a number that could be in the blank space.

_____ 0: No responses are correct.	
_____ 1: One response is correct.	___ Hesitant
_____ 2: Two responses are correct.	___ Self-corrects
_____ 3: All three responses are correct.	___ Confident

Other observations

ITEM 3:
Show student the list of numerals: 395, 672, 201, 555, 170, 803, 348.
Ask student to place in order of size from largest to smallest.

_____ 0: Has 3 errors or more.	
_____ 1: Has 2 errors.	___ Hesitant
_____ 2: Has 1 error.	___ Self-corrects
_____ 3: Has no errors.	___ Confident

Other observations

ITEM 4:
Show student the three digits: 3, 4, 8.
- Ask student to make as many different 3-digit numbers as possible.
- Ask student to place the numbers in order of size from smallest to largest.
Note:
Six numbers are possible: 348, 384, 438, 483, 843, 834.

_____ 0: Cannot do any of the two tasks OR makes only one number.	
_____ 1: Makes 2 numbers and places them in correct order.	___ Hesitant
_____ 2: Makes 3 numbers and places them in correct order.	___ Self-corrects
_____ 3: Makes 4 numbers and places them in correct order.	___ Confident
_____ 4: Makes 5 numbers and places them in correct order.	
_____ 5: Makes 6 numbers and places them in correct order.	
Note:	
Deduct .5 for an error in placing in correct order.	

Other observations

TOTAL SCORE _____

Assessment for 3.N.5 (place value to 1000)

ITEM 1: • Show student numeral 24. Ask student how many hundreds, tens, and ones in the number. • Show student numeral 605. Ask student how many hundreds, tens, and ones in the number. • Show student numeral 758. Ask student how many hundreds, tens, and ones in the number.	
_____ 0: Has none correct. _____ 1: Has one correct. _____ 2: Has two correct. _____ 3: Has all three correct. Note: Deduct .5 for each error in a task.	___ Hesitant ___ Self-corrects ___ Confident
Other observations	

ITEM 2: • Show student numeral 351. Ask student to write/say number that has one more ten in it. • Show student numeral 222. Ask student to write/say number that has one more hundred in it. • Show student numeral 650. Ask student to write/say number that has one less hundred in it.	
_____ 0: Has none correct. _____ 1: Has one correct. _____ 2: Has two correct. _____ 3: Has all three correct.	___ Hesitant ___ Self-corrects ___ Confident
Other observations	

ITEM 3: • Ask student to write/say number that zero hundreds, 3 tens, and 4 ones. • Ask student to write/say number that 8 hundreds, zero tens and 3 ones. • Ask student to write/say number that 4 hundreds, 5 tens, and zero ones.	
_____ 0: Has none correct. _____ 1: Has one correct. _____ 2: Has two correct. _____ 3: Has all three correct.	___ Hesitant ___ Self-corrects ___ Confident
Other observations	

ITEM 4:

Provide student with 10 PV hundreds (the flats), 10 PV tens (the sticks), and 10 PV ones (the units).

Ask student to use the place value materials to show 342. Ask student to explain his/her thinking.

_____ 0: Does not show 342 correctly and does not explain thinking. _____ 1: Shows 342 correctly but does not explain thinking re: place value. _____ 2: Shows 342 correctly but does not clearly explain thinking re: place value. _____ 3: Shows 342 correctly and clearly explains thinking re: place value.	___ Hesitant ___ Self-corrects ___ Confident

Other observations

ITEM 5:

• Show student five PV hundreds, seven PV tens, and two PV ones. Ask student to write/say number shown by the place value materials.

• Show student eight PV hundreds, zero PV tens, and six PV ones. Ask student to write/say number shown by the place value materials.

• Show student nine PV hundreds, one PV ten, and zero PV ones. Ask student to write/say number shown by the place value materials.

_____ 0: Has none correct. _____ 1: Has one correct. _____ 2: Has two correct. _____ 3: Has all three correct.	___ Hesitant ___ Self-corrects ___ Confident

Other observations

ITEM 6:

Show student card with 225 on it and card with 522 on it.

• Ask student if the two numbers are different.

If student says "not different", then STOP.

• If student says they are different, ask student to explain why they are different.

_____ 0: Says the numbers are NOT different. _____ 1: Says different because the order of digits is switched. _____ 2: Explains different without being clear about place value positions. _____ 3: Explains different by being clear about place value positions. (EG: 3 hundreds versus 5 hundreds, etc.)	___ Hesitant ___ Self-corrects ___ Confident

Other observations

ITEM 7:

Show student card with 324 on it. Tell student this number has the same value as 2 hundreds, 12 tens, and 4 ones AND has the same value as 3 hundreds and 24 ones.

- Show student card with 578 on it. Ask student to say three different numbers that have the same value as 578.

_____ 0: Cannot do the task. _____ 1: Provides one correct number. _____ 2: Provides two correct numbers. _____ 3: Provides three correct numbers.	___ Hesitant ___ Self-corrects ___ Confident

Note:

Many possible numbers. Some are: 4 hundreds, 15 tens, 8 ones; 5 hundreds, 78 ones; 3 hundreds, 25 tens, 8 ones.

Other observations

ITEM 8:

- Show student card with 300, 70, 5. Ask student to write/say number. (Expect three hundred seventy-five.)
- Show student card with 4 hundreds, 13 tens, 5 ones. Ask student to write/say single number it represents. (Expect five hundred thirty-five.)
- Show student card with 6 hundreds, 12 tens, 47 ones. Ask student to write/say single number it represents. (Expect seven hundred sixty-seven.)

_____ 0: Cannot do the task. _____ 1: Provides one correct number. _____ 2: Provides two correct numbers. _____ 3: Provides three correct numbers.	___ Hesitant ___ Self-corrects ___ Confident

Other observations

TOTAL SCORE _____

Assessment for 3.N.6 (2-digit mental math addition)

ITEM 1:
- Ask student to do 13 + 24 by adding from left to right (expect: 10 + 20 and 3 + 4).
- Ask student to do 34 + 42 by adding from left to right (expect: 30 + 40 and 4 + 2).
- Ask student to do 55 + 65 by adding from left to right (expect: 50 + 60 and 5 + 5).

_____ 0: Cannot use left to right strategy. _____ 1: Uses left to right strategy appropriately once. _____ 2: Uses left to right strategy appropriately twice. _____ 3: Uses left to right strategy appropriately three times.	___ Hesitant ___ Self-corrects ___ Confident

Note:
Deduct .25 for each error (e.g. 4 + 7 is 12) in a task.

Other observations

ITEM 2:
- Ask student to do 39 + 25 using a multiple of ten strategy (expect: 40 + 25 – 1 or 30 + 39 - 5)
- Ask student to do 58 + 34 using a multiple of ten strategy (expect: 60 + 34 – 2 or 40 + 58 – 6)
- Ask student to do 66 + 29 using a multiple of ten strategy (expect: 30 + 66 – 1 or 70 + 29 – 4)

_____ 0: Cannot use multiple of ten strategy. _____ 1: Uses multiple of ten strategy appropriately once. _____ 2: Uses multiple of ten strategy appropriately twice. _____ 3: Uses multiple of ten strategy appropriately three times.	___ Hesitant ___ Self-corrects ___ Confident

Note:
Deduct .25 for each error (e.g. 40 + 20 is 70) in a task.

Other observations

ITEM 3:	
• Ask student to do 15 + 17 using a doubles strategy (e.g. expect: 15 + 15 + 2). • Ask student to do 28 + 25 using a doubles strategy (e.g. expect: 25 + 25 + 3). • Ask student to do 33 + 37 using a doubles strategy (e.g. expect: 33 + 33 + 4). Note: Accept other versions of doubles (e.g. 28 + 25 is 24 + 24 + 4 + 1)	
_____ 0: Cannot use doubles strategy. _____ 1: Uses doubles strategy appropriately once. _____ 2: Uses doubles strategy appropriately twice. _____ 3: Uses doubles strategy appropriately three times. Note: Deduct .25 for each error (e.g. 33 + 33) in a task.	___ Hesitant ___ Self-corrects ___ Confident
Other observations	

ITEM 4:	
• Ask student to describe with an example a mental math addition strategy that he/she uses that is different from the ones asked about so far.	
_____ 0: Cannot describe/provide example. _____ 1: Provides example that is one of the types from items 1-3. (deduct .5 if makes an error) _____ 2: Provides example that is different from the types in items 1-3 but makes error. _____ 3: Provides example that is different from the types in items 1-3 and makes no errors.	___ Hesitant ___ Self-corrects ___ Confident
Other observations	

TOTAL SCORE _____

Assessment for 3.N.7 (2-digit mental math subtraction)

ITEM 1:
• Ask student to do 37 - 19 using a multiple of ten strategy (expect: 37 – 20 + 1)
• Ask student to do 55 - 38 using a multiple of ten strategy (expect: 55 – 40 + 2)
• Ask student to do 83 - 47 using a multiple of ten strategy (expect: 83 – 50 + 3)

_____ 0: Cannot use multiple of ten strategy. _____ 1: Uses multiple of ten strategy appropriately once. _____ 2: Uses multiple of ten strategy appropriately twice. _____ 3: Uses multiple of ten strategy appropriately three times. Note: Deduct .25 for each error (e.g. 55 – 40 is 25) in a task.	___ Hesitant ___ Self-corrects ___ Confident
Other observations	

ITEM 2:
• Ask student to do 43 - 28 using a thinking of addition strategy (expect: from 28; do +2, +13 is 15).
• Ask student to do 66 - 37 using a thinking of addition strategy (expect: from 37; do +3, +26 is 29)
• Ask student to do 95 - 46 using a thinking of addition strategy (expect: from 46; do +4, +45 is 49).
Note: Accept other versions of thinking addition (e.g. from 28; + 12, + 3 is 15).

_____ 0: Cannot use thinking of addition strategy. _____ 1: Uses thinking of addition strategy appropriately once. _____ 2: Uses thinking of addition strategy appropriately twice. _____ 3: Uses thinking of addition strategy appropriately three times. Note: Deduct .25 for each error (e.g. 3 + 26 is 28) in a task.	___ Hesitant ___ Self-corrects ___ Confident
Other observations	

ITEM 3:
• Ask student to describe with an example a mental math subtraction strategy that he/she uses that is different from the ones asked about so far.

_____ 0: Cannot describe or provide example. _____ 1: Provides example that is one of the types from items 1-2. (deduct .5 if makes an error) _____ 2: Provides example that is different from the types in items 1-2 but makes error. _____ 3: Provides example that is different from the types in items 1-2 and makes no errors.	___ Hesitant ___ Self-corrects ___ Confident
Other observations	

TOTAL SCORE _____

Assessment for 3.N.8 (Estimating 2-digit sums/differences)

ITEM 1:
- Tell student a story problem that involves doing 24 + 35 to get an answer. Ask student to estimate the answer.
- Ask student to explain how he/she estimated the answer.
- Tell student a story problem that involves doing 47 + 38 to get an answer. Ask student to estimate the answer.
- Ask student to explain how he/she estimated the answer.

Note: DO NOT tell student that he/she needs to add. Student must figure this out.

_____ 0: Does not attempt/does not add to do either task. _____ 1: Estimates within plus/minus 6 for one problem only. Cannot explain estimation process at all. _____ 2: Estimates within plus/minus 6 for one problem and estimate is off (not within +/- 6) for other problem. Explains estimation process for one problem. _____ 2: Estimates within plus/minus 6 for both problems. Does not explain estimation process. _____ 3: Estimates within plus/minus 6 for both problems. Explains estimation process only for one problem. _____ 4: Estimates within plus/minus 6 for both problems. Explains estimation process for both problems.	___ Hesitant ___ Self-corrects ___ Confident

Other observations

ITEM 2:
- Tell student a story problem that involves doing 45 - 21 to get an answer. Ask student to estimate the answer.
- Ask student to explain how he/she estimated the answer.
- Tell student a story problem that involves doing 83 - 57 to get an answer. Ask student to estimate the answer.
- Ask student to explain how he/she estimated the answer.

Note: DO NOT tell student that he/she needs to subtract. Student must figure this out.

_____ 0: Does not attempt/does not subtract to do either task. _____ 1: Estimates within plus/minus 6 for one problem only. Cannot explain estimation process at all. _____ 2: Estimates within plus/minus 6 for one problem and estimate is off (not within +/- 6) for other problem. Explains estimation process for one problem. _____ 2: Estimates within plus/minus 6 for both problems. Does not explain estimation process. _____ 3: Estimates within plus/minus 6 for both problems. Explains estimation process only for one problem. _____ 4: Estimates within plus/minus 6 for both problems. Explains estimation process for both problems.	___ Hesitant ___ Self-corrects ___ Confident

Other observations

TOTAL SCORE _____

Assessment for 3.N.9 (3-digit addition)

ITEM 1:
Provide student with ten 100-flats, ten 10-sticks, and ten units (place value materials).
- Ask student to use the materials to obtain answer to 74 + 27.
- Ask student to use the materials to obtain answer to 125 + 59.
- Ask student to use the materials to obtain answer to 236 + 478.
- Ask student to explain thinking for getting answer to 236 + 478.

_____ 0: None of the addition tasks is correct. _____ 1: One of the addition tasks is correct. _____ 2: Two of the addition tasks are correct. _____ 3: All three of the addition tasks are correct. _____ 4: All three addition tasks are correct and explains thinking for 236 + 478 appropriately.	___ Hesitant ___ Self-corrects ___ Confident

Other observations

ITEM 2:
- Ask student to do 84 + 79 in whatever way he/she wants.
- Ask student to do 135 + 247 in whatever way he/she wants
- Ask student to do 636 + 255 in whatever way he/she wants.
- Ask student to explain thinking for getting answer to 636 + 255.

Note: Concrete materials are not allowed. The student can use writing materials.

_____ 0: None of the addition tasks are correct. _____ 1: One of the addition tasks is correct. _____ 2: Two of the addition tasks are correct. _____ 3: All three of the addition tasks are correct. _____ 4: All three addition tasks are correct and explains thinking for 636 + 255 appropriately.	___ Hesitant ___ Self-corrects ___ Confident

Other observations

ITEM 3: • Ask student to make up a story problem for 354 + 649. • Ask student to obtain answer to story problem. • Ask student to explain how answer was obtained.	
_____ 0: Cannot make up/makes up in appropriate story problem. Does not obtain correct answer to 354 + 649. Cannot explain how answer obtained. _____ 1: Makes up appropriate story problem. Obtains correct answer to 354 + 649. Cannot explain how answer obtained. _____ 2: Makes up appropriate story problem. Obtains incorrect answer to 354 + 649 (makes error). Can explain how answer obtained. _____ 3: Makes up appropriate story problem. Obtains correct answer to 354 + 649. Can explain how answer obtained.	___ Hesitant ___ Self-corrects ___ Confident
Other observations	

TOTAL SCORE _____

Assessment for 3.N.9 (3-digit subtraction)

<u>ITEM 1:</u>
Provide student with ten 100-flats, ten 10-sticks, and ten units (place value materials).
- Ask student to use the materials to obtain answer to 128 - 32.
- Ask student to use the materials to obtain answer to 345 - 67.
- Ask student to use the materials to obtain answer to 603 - 459.
- Ask student to explain thinking for getting answer to 603 - 459.

_____ 0: None of the subtraction tasks is correct. _____ 1: One of the subtraction tasks is correct. _____ 2: Two of the subtraction tasks are correct. _____ 3: All three of the subtraction tasks are correct. _____ 4: All subtraction tasks are correct and explains thinking for 603 - 459 appropriately.	___ Hesitant ___ Self-corrects ___ Confident

Other observations

<u>ITEM 2:</u>
- Ask student to do 168 - 54 in whatever way he/she wants.
- Ask student to do 183 - 119 in whatever way he/she wants
- Ask student to do 730 - 476 in whatever way he/she wants.
- Ask student to explain thinking for getting answer to 730 - 476.

Note: Concrete materials are not allowed. The student can use writing materials.

_____ 0: None of the subtraction tasks are correct. _____ 1: One of the subtraction tasks is correct. _____ 2: Two of the subtraction tasks are correct. _____ 3: All three of the subtraction tasks are correct. _____ 4: All three subtraction tasks are correct and explains thinking for 730 - 476 appropriately.	___ Hesitant ___ Self-corrects ___ Confident

Other observations

ITEM 3: - Ask student to make up a story problem for 615 - 428. - Ask student to obtain answer to story problem. - Ask student to explain how answer was obtained.	
_____ 0: Cannot make up/makes up in appropriate story problem. Does not obtain correct answer to 615 - 428. Cannot explain how answer obtained. _____ 1: Makes up appropriate story problem. Obtains correct answer to 615 - 428. Cannot explain how answer obtained. _____ 2: Makes up appropriate story problem. Obtains incorrect answer to 615 - 428 (makes error). Can explain how answer obtained. _____ 3: Makes up appropriate story problem. Obtains correct answer to 615 - 428. Can explain how answer obtained.	___ Hesitant ___ Self-corrects ___ Confident
Other observations	

TOTAL SCORE _____

Assessment for 3.N.10 (Mental math strategies)

ITEM 1:	
• Ask student if answer to 47 + 35 is the same as the answer to 35 + 47. If says 'different/not same', STOP. • Ask student to explain why the answer to the additions is the same.	
_____ 0: Says 'different/not same'. _____ 1: Says 'same' but cannot explain why. _____ 2: Says 'same' and explains why but not clearly. _____ 3: Says 'same' and explains why clearly based on putting together.	___ Hesitant ___ Self-corrects ___ Confident
Other observations	

ITEM 2:	
• Ask student to obtain answer to 458 + 0. Ask student to explain answer. • Ask student to obtain answer to 136 - 0. Ask student to explain answer	
_____ 0: Both answers incorrect. _____ 1: One answer correct but no explanation. _____ 2: Two answers correct but no explanation. _____ 3: Both answers correct and one explanation appropriate (based on putting together or taking away). _____ 4: Both answers correct and both explanations appropriate (based on putting together or taking away).	___ Hesitant ___ Self-corrects ___ Confident
Other observations	

ITEM 3:	
• Ask student to give answer to 35 + 29, using a mental math strategy. Ask student to explain the strategy used. • Ask student to give answer to 45 – 29, using a mental math strategy. Ask student to explain the strategy used. • Ask student to give answer to 65 – 38, using a mental math strategy. Ask student to explain the strategy used. Note: Counters NOT allowed. Allow any mental math strategy that is valid mathematics.	
_____ 0: Obtains correct/incorrect answers but cannot explain strategy. _____ 1: Obtains one correct answer and explains strategy. _____ 2: Obtains two correct answers and explains strategy. _____ 3: Obtains three correct answers and explains strategy. Note: Give .5 points if mental math strategy explained clearly but addition/subtraction is incorrect.	___ Hesitant ___ Self-corrects ___ Confident
Other observations	

ITEM 4:
- Ask student to give answer to 5 + 6 by using a mental math strategy. Ask student to explain the strategy used.
- Ask student to give answer to 6 + 8 by using a mental math strategy. Ask student to explain the strategy used.
- Ask student to give answer to 8 + 4 by using a mental math strategy. Ask student to explain the strategy used.
- Ask student to give answer to 8 + 9 by using a mental math strategy. Ask student to explain the strategy used.

Note:

DO NOT provide counters.

Mental math strategies include (but not restricted to):
- doubles (e.g., for 4 + 6, think 5 + 5)
- doubles plus one (e.g., for 4 + 5, think 4 + 4 + 1)
- doubles take away one (e.g., for 4 + 5, think 5 + 5 – 1)
- doubles plus two (e.g., for 4 + 6, think 4 + 4 + 2)
- doubles take away two (e.g., for 4 + 6, think 6 + 6 – 2)
- making 10 (e.g., for 7 + 5, think 7 + 3 + 2)
- building on a known double (e.g., 6 + 6 = 12, so 6 + 7 = 12 + 1 = 13)
- addition to subtraction (e.g., for 7 – 3, think 3 + ? = 7)

_____ 0: Obtains correct/incorrect answers but cannot explain strategy. _____ 1: Obtains one correct answer and explains clearly strategy. _____ 2: Obtains two correct answers and explains clearly strategy. _____ 3: Obtains three correct answers and explains clearly strategy. _____ 4: Obtains four correct answers and explains strategy. Note: Give .5 points if mental math strategy explained clearly but addition is incorrect.	___ Hesitant ___ Self-corrects ___ Confident

Other observations

TOTAL SCORE _____

Assessment for 3.N.10 (Recall addition and subtraction facts)

ITEM 1:
Ask student each addition (see table below) in turn. Tell student to say answer if knows "by heart". Otherwise, say "pass".
Note:
"By heart" means student must provide correct answer within 1 ½ second after hearing the question.

_____ 0: 5 or less known.	
_____ 1: Between 6 and 9 inclusive known.	___ Hesitant
_____ 2: Between 10 and 13 inclusive known.	___ Self-corrects
_____ 3: Between 14 and 17 inclusive known.	___ Confident
_____ 4: 18 or more known.	

Other observations

8 + 6	7 + 3	5 + 6	9 + 4	8 + 7
5 + 4	6 + 2	8 + 3	9 + 5	6 + 6
8 + 8	7 + 7	7 + 9	5 + 5	4 + 8
7 + 4	9 + 3	7 + 5	9 + 9	5 + 8

ITEM 2:
Ask student each subtraction (see table below) in turn. Tell student to say answer if knows "by heart". Otherwise, say "pass".

_____ 0: 5 or less known.	
_____ 1: Between 6 and 9 inclusive known.	___ Hesitant
_____ 2: Between 10 and 13 inclusive known.	___ Self-corrects
_____ 3: Between 14 and 17 inclusive known.	___ Confident
_____ 4: 18 or more known.	

Other observations

9 - 4	8 - 3	15 - 6	17 - 8	15 - 7
12 - 8	13 - 9	14 - 7	13 - 6	16 - 8
12 - 6	16 - 7	11 - 8	14 - 5	13 - 5
14 - 6	15 - 8	12 - 9	11 - 5	13 - 4

TOTAL SCORE _____

Assessment for 3.N.11 (Meaning of X)

ITEM 1:
- Show student 3 piles with 4 counters in each pile (piles already formed). Ask student to write number sentence for the situation. The number sentence cannot involve addition (expect: 3 x 4 = 12).
- Show student card with 2 x 5 on it. Provide student with 20 counters. Ask student to use counters placed in piles to represent the number sentence (expect 2 piles with 5 counters in each).
- Tell student this situation: "*Bob has four bags. In each bag there are 2 marbles. He has 8 marbles in the bags.*" Ask student to write number sentence for the situation. The number sentence cannot involve addition (expect: 4 x 2 = 8).

_____ 0: None of the tasks done correctly. _____ 1: One task done correctly. _____ 2: Two tasks done correctly. _____ 3: Three tasks done correctly.	___ Hesitant ___ Self-corrects ___ Confident

Note:
Deduct .5 if student reverses order (e.g. Instead of 3 x 4, student writes 4 x 3).

Other observations

ITEM 2:
- Show student a 3 by 5 array (3 rows and 5 columns). Ask student to write number sentence for the situation. The number sentence cannot involve addition (expect: 3 x 5 = 15).
- Show student card with 2 x 4 on it. Provide student with 20 counters. Ask student to use counters to represent the number sentence as an array (expect: 2 rows and 4 columns).
- Tell student this situation: "*There are 8 desks in a classroom. They are arranged in 4 rows with 2 desks in each row.*" Ask student to write number sentence for the situation. The number sentence cannot involve addition (expect: 4 x 2 = 8).
- Ask student to use an array to show why 2 x 3 is the same as 3 x 2 (expect: switching rows and columns does not change the number of counters).

_____ 0: None of the tasks done correctly. _____ 1: One task done correctly. _____ 2: Two tasks done correctly. _____ 3: Three tasks done correctly. _____ 4: Four tasks done correctly.	___ Hesitant ___ Self-corrects ___ Confident

Note (for tasks 1, 2, 3):
Deduct .5 if student reverses order (e.g. Instead of 3 x 5, student writes 5 x 3).

Other observations

ITEM 3:
- Show student number sentence '2 + 2 + 2 + 2 = 8'. Ask student to write it as a multiplication number sentence (expect: 4 x 2 = 8).
- Show student number sentence '5 x 4 = 20'. Ask student to write it as an addition number sentence (expect: 4 + 4 + 4 + 4 + 4 = 20).
- Tell student this situation: "*Bob has 3 bags. In each bag there are 5 marbles. Bob has 15 marbles in all.*" Ask student to write an addition number sentence for the situation (expect: 5 + 5 + 5 = 15).

_____ 0: None of the tasks done correctly. _____ 1: One task done correctly. _____ 2: Two tasks done correctly. _____ 3: Three tasks done correctly.	___ Hesitant ___ Self-corrects ___ Confident

Note:
Deduct .5 if student reverses order of what is being repeated (e.g. Instead of 4 + 4 + 4 + 4 + 4, student writes 5 + 5 + 5 + 5).

Other observations

ITEM 4:
- Tell student a story problem that involves multiplication for number sentence '2 x 5 = ?'. Ask student to write number sentence and to figure out the answer. Ask student to explain how the answer was figured out.

_____ 0: Does not do anything/no indication of understanding multiplication or repeated addition is involved in story problem. _____ 1: Recognizes multiplication/repeated addition is involved but answer incorrect and cannot explain how arrived at. _____ 2: Recognizes multiplication/repeated addition is involved, answer correct but cannot explain how arrived at (OR answer incorrect but can explain how arrived at). _____ 3: Recognizes multiplication/repeated addition is involved, answer correct and can explain how arrived at.	___ Hesitant ___ Self-corrects ___ Confident

Other observations

ITEM 5:

Provide student with 30 counters.
- Ask student to make up and tell a story problem for '4 x 5 = ?'.
- Ask student to use counters to figure out the answer to the problem.
- Ask student to explain the thinking he/she uses while working with the counters.

_____ 0: Cannot make up a story problem OR story problem does not involve multiplication (not about 4 bags with 5 in each or 4 rows with 5 columns). _____ 1: Story problem involves multiplication. Cannot use counters to figure out answer. Cannot explain thinking. _____ 2: Story problem involves multiplication. Uses counters in a multiplication/repeated addition way. Cannot explain thinking. _____ 3: Story problem involves multiplication. Uses counters in a multiplication/repeated addition way. Can explain thinking.	___ Hesitant ___ Self-corrects ___ Confident

Other observations

TOTAL SCORE _____

Assessment for 3.N.11 and 3.N.12 (relating multiplication and division)

ITEM 1:

Provide student with 15 counters.
- Ask student to make 3 piles with 5 counters in each pile.
- Ask student to write multiplication number sentence for the situation (Expect 3 x 5 = 15).
- Ask student to write division number sentence for the situation (Expect 15 ÷ 5 = 3).

_____ 0: Cannot do any of the tasks. _____ 1: Makes 3 piles of 5 but cannot write number sentences. _____ 2: Makes 3 piles of 5 as well as: Writes correct multiplication number sentence OR correct division number sentence. _____ 3: Makes 3 piles of 5 as well as: Both number sentences are correct except one of them has an order reversal (e.g. instead of 3 x 5 = 15, student writes 5 x 3 = 15). _____ 4: Makes 3 piles of 5 as well as: Both number sentences are correct.	___ Hesitant ___ Self-corrects ___ Confident

Other observations

ITEM 2:

Provide student with 20 counters.
- Ask student to make an array having 4 rows with 5 in each row.
- Ask student to write multiplication number sentence for the situation (Expect 4 x 5 = 20).
- Ask student to write division number sentence for the situation (Expect 20 ÷ 5 = 4).

_____ 0: Cannot do any of the tasks. _____ 1: Makes 4 rows of 5 but cannot write number sentences.. _____ 2: Makes 4 rows of 5 as well as: Writes correct multiplication number sentence OR correct division number sentence. _____ 3: Makes 4 rows of 5 as well as: Both number sentences are correct except one of them has an order reversal (e.g. instead of 3 x 5 = 15, student writes 5 x 3 = 15). _____ 4: Makes 4 rows of 5 as well as: Both number sentences are correct.	___ Hesitant ___ Self-corrects __ Confident

Other observations

ITEM 3:
- Ask student to write division number sentence for: 3 x 4 = 12. (Expect 12 ÷ 4 = 3)
- Ask student to write multiplication number sentence for: 10 ÷ 2 = 5. (Expect 5 x 2 = 10)
- Ask student to explain the connection between the two number sentences.

_____ 0: Cannot do any of the tasks. _____ 1: Writes one number sentence but cannot explain. _____ 2: Writes two number sentences but cannot explain. _____ 3: Writes two number sentences and can explain. _____ 4: Makes 3 piles of 5 as well as: Both number sentences are correct.	___ Hesitant ___ Self-corrects ___ Confident

Other observations

TOTAL SCORE _____

Assessment for 3.N.12 (Meaning of ÷)

ITEM 1:
- Provide student with 20 counters. Ask student to split them up in to five equal groups.
- Show student card with $12 \div 3 = 4$ on it. Provide student with 20 counters. Ask student to use counters placed in piles to represent the number sentence (expect 4 piles with 3 counters in each).
- Show student card with $8 \div 4 = 2$ on it. Provide student with 20 counters. Ask student to use counters placed in piles to represent the number sentence (expect 2 piles with 4 counters in each).

_____ 0: None of the tasks done correctly. _____ 1: One task done correctly. _____ 2: Two tasks done correctly. _____ 3: Three tasks done correctly.	___ Hesitant ___ Self-corrects ___ Confident

Note:
Deduct .5 if student reverses order (e.g. instead of 4 piles of 3, student makes 3 poles of 4).

Other observations

ITEM 2:
- Demonstrate for student splitting up 15 counters into three groups of 5. Ask them to write/say the number sentence for what you did (expect $15 \div 5 = 3$)
- Demonstrate for student splitting up 8 counters into two groups of 4. Ask them to write/say the number sentence for what you did (expect $8 \div 4 = 2$)
- Provide student with 20 counters. Ask student to demonstrate the number sentence: $16 \div 2 = 8$ (expect them to make 8 groups of 2)
- Provide student with 20 counters. Ask student to demonstrate the number sentence: $10 \div 5 = 2$ (expect them to make 2 groups of 5)

_____ 0: None of the tasks done correctly. _____ 1: One task done correctly. _____ 2: Two tasks done correctly. _____ 3: Three tasks done correctly. _____ 4: Four tasks done correctly.	___ Hesitant ___ Self-corrects ___ Confident

Note:
Deduct .5 if student reverses order (e.g. Instead of $15 \div 5 = 3$, he/she does $15 \div 3 = 5$).

Other observations

ITEM 3:
- Ask student to work out answer to 12 ÷ 3 by using repeated subtraction.
- Ask student to work out answer to 20 ÷ 4 by using repeated subtraction.
- Show student the repeated subtraction: 16 – 8 - 8. Ask student write/say the repeated subtraction as a division number sentence (expect 16 ÷ 8 = 2).
- Show student the repeated subtraction: 10 – 2 – 2 – 2 – 2 - 2. Ask student write/say the repeated subtraction as a division number sentence (expect 10 ÷ 2 = 5).

_____ 0: None of the tasks done correctly. _____ 1: One task done correctly. _____ 2: Two tasks done correctly. _____ 3: Three tasks done correctly. _____ 4: Four tasks done correctly. Note: Deduct .5 if student reverses order (e.g. Instead of 16 ÷ 8 = 2, student writes 16 ÷ 2 = 8).	___ Hesitant ___ Self-corrects ___ Confident

Other observations

ITEM 4:
- Tell student story problem: "*There are 8 cookies on a plate. Each boy takes two. How many boys can have two cookies each*?" Ask student to solve story problem. Ask student to explain thinking.
- Tell student story problem: "*Lana has 15 pencils. She wants to give them away equally to her five friends. How many pencils will each friend get?*" Ask student to solve story problem. Ask student to explain thinking.
- Tell student story problem: "*Mark had a bag of candies. He spilt them out of the bag and made 4 piles of 3 candies. How many candies were in the bag?*" Ask student to solve story problem. Ask student to explain thinking.

_____ 0: Cannot solve any of the problems. _____ 1: Solves one problem and explains the thinking appropriately. _____ 2: Solves two problems and explains the thinking appropriately. _____ 3: Solves three problems and explains the thinking appropriately. Noie: Deduct .5 if explanation of thinking is not appropriate.	___ Hesitant ___ Self-corrects ___ Confident

Other observations

ITEM 5:

Provide student with 30 counters.
- Ask student to make up and tell a story problem about 'how many groups'. Ask student to use counters to figure out the answer to the problem.
- Ask student to make up and tell a story problem about how many in each group. Ask student to use counters to figure out the answer to the problem.

_____ 0: Cannot make up a story problem OR story problem does not involve division. _____ 1: Only one story problem involves division with appropriate question. Cannot use counters to figure out answer. _____ 2: Only one story problem involves division with appropriate question. Can use counters to figure out answer. _____ 3: Both story problems involve division with appropriate question. Can use counters to figure out answer only for one of the problems. _____ 4: Both story problems involve division with appropriate question. Can use counters to figure out answer for both problems. Note: Deduct .5 if problem question not appropriate (e.g. asks a how many groups Q instead of a how many in each group Q).	___ Hesitant ___ Self-corrects ___ Confident
Other observations	

TOTAL SCORE _____

Assessment for 3.N.13 (Part of a whole meaning of fraction)

ITEM 1:
- Provide student with a sheet of paper. Ask student to fold the paper to show the fraction ½. Ask student to point to ½ part of folded paper.
- Provide student with a sheet of paper. Ask student to fold the paper to show the fraction1/4. Ask student to point to 1/4 part of folded paper.

_____ 0: None of the tasks done correctly. _____ 1: Student could fold to make ½ but could not point to ½ section. _____ 2: Student could fold to make ½ and could point to ½ section. _____ 3: Student could fold to make ½ an d1/4 but could only point correctly to one of the two sections. _____ 4: Student could fold to make ½ and 1/4 and could point to both fraction sections.	___ Hesitant ___ Self-corrects ___ Confident

Other observations

ITEM 2:
Show student a rectangular model for 2/5 (a rectangle cut into 5 equal parts with two parts shaded).
- Ask student to tell what fraction is shaded. (expect 2/5)
- Ask student to tell what fraction is unshaded. (expect 3/5)
- Ask student to identify numerator for shaded fraction.
- Ask student to identify denominator for unshaded fraction.

_____ 0: None of the tasks done correctly. _____ 1: One task done correctly. _____ 2: Two tasks done correctly. _____ 3: Three tasks done correctly. _____ 4: Four tasks done correctly.	___ Hesitant ___ Self-corrects ___ Confident

Other observations

ITEM 3:

Provide student with paper and pencil.

- Ask student to draw fraction ¾. (expect some type of drawing where 4 parts roughly equal and 3 shaded).
- Ask student why his/her drawing shows 3/4 (expect 4 equal parts with 3 shaded).
- Ask student to draw fraction 2/6. (expect some type of drawing where 6 parts roughly equal and 2 shaded).
- Ask student why his/her drawing shows 2/6 (expect 2 equal parts with 6 shaded).

_____ 0: None of the tasks done correctly.	
_____ 1: One task done correctly.	___ Hesitant
_____ 2: Two tasks done correctly.	___ Self-corrects
_____ 3: Three tasks done correctly.	___ Confident
_____ 4: Four tasks done correctly.	

Other observations

TOTAL SCORE _____