Teacher Guide

The SNAP is the district numeracy assessment for all students in grades 2 – 7. Our objective is that all students in grades 2 – 7 will be assessed in depth in relation to a pair of content area outcomes. This assessment will reflect the curricular competencies and be graded on a performance scale. We have added grade 8 and 9 optional outcomes to the package in the event that Middle Schools want to use the SNAP school wide.

Our team of SD33 educators have been working on the new district assessment since September 2015 and have chosen the outcomes to be assessed.

Included in this package:
- Grade Outcomes
- Directions to Teachers
- Grading Rubric for Number Sense Assessment
- Grading Rubric for Operations Assessment
- Number Sense Assessment
- Operations Assessment

Grade Outcomes:

The following outcomes are to be used with the District Math Assessment.

Grade 2:
Outcome #1 – Number Sense up to 100
    May/June – Any two-digit number
Outcome #2 – Operations Addition to 100
    May/June – Addition of any two digit numbers without regrouping. Sum not exceeding 100.

Grade 3:
Outcome #1 – Number Sense up to 1000
    May/June – Any three-digit number
Outcome #2 – Operations Subtraction to 1000
    May/June – Subtraction of any three digit numbers with regrouping.

Grade 4:
Outcome #1 – Number Sense up to 10 000
May/June – Any four-digit number
Outcome #2 – Operations Multiplication of up to three-digit numbers by one-digit numbers
May/June – Multiplication of three-digit by one-digit numbers.

Grade 5:
Outcome #1 – Number Sense up to 1 000 000
May/June – Any six-digit number
Outcome #2 – Operations Division of up to three-digit division with remainders
May/June – Division of three-digit by one-digit with remainders.

Grade 6:
Outcome #1 – Number Sense from thousandths to billions
May/June – Any hundredths decimal (e.g. 1.12; 0.34; 0.78)
Outcome #2 – Division of decimals.
   May/June – Operations Divisor is a one-digit whole number. The dividend can be any four-digit number with hundredths. For example: (45.34÷5=n); (71.76÷3=n); *Note: Ensure that the quotient of the question does not exceed thousandths.

Grade 7:
Outcome #1 – Number Sense Integers
May/June – Any two-digit negative whole number.
Outcome #2 – Operations Conversions between fractions, decimals and percent
May/June – Start with a fraction. Convert to a decimal. Then convert to a percentage. *Ex 6/25, 2/20, 121/125. Choose fractions with denominators that can be converted into base 10 by using equivalent fractions.

Optional Grade 8:
Outcome #1 – Number Sense Percent greater than 100 (e.g. 140%)
Outcome #2 – Operations with fractions - addition (.g. 1/5 + 6/7 = ___)

Optional Grade 9:
Outcome #1 – Number Sense Exponents e.g. 5³
Outcome #2 – Operations multistep one variable linear equations (e.g. 2x + 5 = -7)
Directions to Teachers:

- The assessment templates and associated outcomes need to be taught explicitly for students to be successful.
- These are teaching tools (not just assessments) that can be used multiple times per week.
- It might be a good idea for some classes to have the assessment introduced in chunks. For instance:
  - Start simple. Choose a number that the students will have success with.
    - Review the previous year’s outcomes
  - Start students off by working on the assessment in groups or pairs to build confidence and success
  - Teach explicitly each component of the assessment
  - Have students share their thinking; encourage them to use many different ways to demonstrate their thinking/solutions
- When evaluating the tool as an assessment, be sure to consider the assessment as a whole, as one part of the assessment can inform other pieces/outcomes.
- If during your pre-assessments (prior to May), you have students fully meeting expectations, record and file their achievement, then create learning extension opportunities for those students.
- Expect to see a noticeable difference to how students perform at different times of the year.
- If the sheet is too small (for grades 4 and higher), we recommend to use 11 x 17 sheets of paper. Grades 2 & 3 assessments are already on 11 x 17 sheets by default.
- Manipulatives can be used as an optional support.

Number Sense Specific Areas:

See Grading Rubrics for specific criteria. The goal is for our students to be fully proficient (3) in relation to the rubric by the end of the school year.

Draw Box: The picture/drawing/sketch is intended to be an open ended activity. Please be sure to have the students explain their thinking in the picture. Depending on their writing ability, this may require a conversation. The picture must show the value of the number.

Equation Box: Reminder that students who are demonstrating full proficiency will be using grade appropriate operations in their equations.
Real Life Example: The examples must be realistic and specific. It is important that students demonstrate an understanding of value in their example. For instance, “Wayne Gretzky’s number is 99” does not show an understanding of value; “we have 99 grade three students in our school” does.

Number Line: For grades 2-5, the bookends to the number line are provided. For grades 6 & 7, the teacher needs to create the bookends according to the number chosen for the assessment (i.e. integer, fraction, or decimal). To demonstrate full proficiency, students will add benchmarks to their number line to help situate the number.

Operations Specific Areas:
See Grading Rubrics for specific criteria.

Represent: Student needs to visually represent the operation. The student may or may not provide the answer in their drawing.

Calculation: Multiple grade appropriate calculations reflect proficient achievement. Using the reverse operation to “check” their work is also a recommended strategy.

Grade 2 Math Story: Encourage students to draw picture to “tell” their story if they do not have the written ability to write a quick story. A quick follow up conversation will be required to know whether students are able to communicate their understanding.

Real Life Example or Word Problem: Students need to be able to give an example and provide details and evidence that communicate their understanding of the math.

Exemplars:

We have added a selection of exemplars; these examples are intended to represent proficiency in all categories. Currently we have included examples from grades 2 – 6. Further examples are in development. We will be updating our exemplars on an ongoing basis. Please feel free to send in student examples that you believe clearly show student proficiency. Scan and send to joanne_britton@sd33.bc.ca.
We are grateful to the dedicated team of Chilliwack educators who crafted and piloted this assessment: Christine Blessin, Jonathan Ferris, Kathy Isaac, Anna Lownie, Shannon McCann, Tammy McKinley, Justin Moore, Kirk Savage, Paul Wojcik
SNAP

Number Sense (0 - 1000)

- Draw to represent the value of the number:
- Write to describe your picture:
- Write the number in expanded form:
- Create 3 equations that equal the number:
- Write a real life example that shows the value of the number:

- Show where the number belongs on the number line:

Grade 3

Student Numeracy Assessment and Practice (SNAP)
## Number Sense Rubric

SNAP (Student Numeracy Assessment & Practice)

<table>
<thead>
<tr>
<th>Competency</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Communicating and Representing Picture Box</strong></td>
<td>• Pictures do not show the value of the number</td>
<td>• Pictures show some value in representing the number</td>
<td>• Pictures are clearly communicated and represent the value of the number</td>
<td>• Pictures are clearly communicated and represent the value of the number</td>
</tr>
<tr>
<td></td>
<td>• Inaccurate</td>
<td>• Partially accurate</td>
<td>• Accurate</td>
<td>• Accurate</td>
</tr>
<tr>
<td><strong>Describe Picture</strong></td>
<td>• Description and elaboration of pictorial representation is not evident</td>
<td>• Partial accuracy in describing and elaborating on pictorial representation</td>
<td>• Accurately describes and elaborates on pictorial representation</td>
<td>• Accurately describes and elaborates on pictorial representation in a variety of ways</td>
</tr>
<tr>
<td></td>
<td>• Communication is not clear</td>
<td>• Partially communicated</td>
<td>• Clearly communicated</td>
<td>• Clearly communicated</td>
</tr>
<tr>
<td><strong>Expanded Form</strong></td>
<td>• The value of each digit is not evident</td>
<td>• Partially accurate in demonstrating the value of each digit</td>
<td>• Accurately demonstrates the value of each digit</td>
<td>• N/A</td>
</tr>
<tr>
<td><strong>Understanding and Solving 3 Equations</strong></td>
<td>• Accurate grade appropriate operations are not evident</td>
<td>• Accurately uses grade appropriate operations in one or two equations</td>
<td>• Accurately uses grade appropriate operations in all three equations</td>
<td>• Accurately uses grade appropriate operations in all three equations with increasing complexity and variety</td>
</tr>
<tr>
<td><strong>Connecting and Reflecting Real Life Connection</strong></td>
<td>• A real life example is not provided</td>
<td>• A partial connection to a real life example is provided</td>
<td>• Connection to a real life example is provided</td>
<td>• Connection to a personal real life example is provided</td>
</tr>
<tr>
<td></td>
<td>• Demonstrates understanding of the number value</td>
<td>• Demonstrates understanding of the number value</td>
<td>• Demonstrates understanding of the number value</td>
<td>• Demonstrates insight of the number value</td>
</tr>
<tr>
<td><strong>Reasoning and Analyzing Number Line</strong></td>
<td>• Incorrect estimate of placement of number on provided number line</td>
<td>• Partially correct estimate of placement of number on provided number line</td>
<td>• Correct estimate of placement of number on provided number line with benchmarks</td>
<td>• Correct estimate of placement of number on provided number line with increasing complexity</td>
</tr>
<tr>
<td><strong>Counting Forwards and Backwards</strong></td>
<td>• Incomplete and inaccurate</td>
<td>• Partially complete and accurate</td>
<td>• Complete and accurate</td>
<td>• N/A</td>
</tr>
</tbody>
</table>
**Operations Subtraction SNAP**

**Operation:**

**Estimate – justify your thinking:**

**Represent - with a sketch or drawing:**

**Calculate:**

**Explain your sketch:**

Write a Real Life Example or Word Problem:

Reflect:

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Communicating & Representing

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Entire assessment</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Understanding & Solving

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Entire assessment except reflection</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Connecting & Reflecting

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Real-life &amp; reflection</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Reasoning & Analyzing

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Estimate</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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Grade 3

Student Numeracy Assessment and Practice (SNAP)
(Adapted from ANIE 2014)
# Operations Rubric
SNAP (Student Numeracy Assessment & Practice)

<table>
<thead>
<tr>
<th>Competency</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Communicating and Representing</strong>&lt;br&gt;Entire Assessment</td>
<td>Student understanding and application of learning outcomes is not evident</td>
<td>The student demonstrates some understanding and application of number sense</td>
<td>The student demonstrates proficient understanding and application of number sense</td>
<td>The student demonstrates superior understanding and application of number sense.</td>
</tr>
<tr>
<td>- Communication (written, pictorial or symbolic) of understanding is not evident</td>
<td>- Communicates (written, pictorial or symbolic) limited understanding</td>
<td>- Communicates (written, pictorial or symbolic) clear understanding in multiple ways</td>
<td>- Communicates (written, pictorial or symbolic) insightful understanding in multiple ways</td>
<td></td>
</tr>
<tr>
<td><strong>Understanding and Solving</strong>&lt;br&gt;Estimate, Draw, Calculate Boxes, and Real Life Applications</td>
<td>Strategies to solve the problem and show understanding are not evident&lt;br&gt;Real life applications are not evident</td>
<td>Strategies to correctly solve the problem and show understanding are simple or limited&lt;br&gt;The real life application is not relevant</td>
<td>Uses multiple <em>grade appropriate</em> strategies to correctly solve the problem and show understanding&lt;br&gt;The real life application is relevant</td>
<td>Uses multiple strategies (<em>some beyond grade expectations</em>) to correctly solve the problem and show understanding&lt;br&gt;The real life application is relevant and insightful</td>
</tr>
<tr>
<td>- Real life applications and connections to mathematical concepts are not evident</td>
<td>- Real life applications and connections to mathematical concepts are limited</td>
<td>- Real life applications and connections to mathematical concepts are evident</td>
<td>- Real life applications and connections to mathematical concepts are insightful</td>
<td></td>
</tr>
<tr>
<td><strong>Connecting and Reflecting</strong>&lt;br&gt;Real Life Example</td>
<td>Simple reflections on mathematical thinking is not evident</td>
<td>Simple reflections on mathematical thinking are evident</td>
<td>Some insight on mathematical thinking is evident</td>
<td>Insightful reflection on mathematical thinking is evident</td>
</tr>
<tr>
<td>- Estimation is not evident&lt;br&gt;Mental math strategies are not used&lt;br&gt;Connections are not evident</td>
<td>- Estimation is simple&lt;br&gt;Minimal use of mental math strategies&lt;br&gt;Simple connections are evident</td>
<td>- Estimation is reasonable&lt;br&gt;Demonstrates the use of mental math strategies&lt;br&gt;Reasonable and logical connections are evident</td>
<td>- Estimation is accurate&lt;br&gt;Demonstrates the use of mental math strategies&lt;br&gt;Insightful and logical connections are evident</td>
<td></td>
</tr>
</tbody>
</table>
SNAP
Number Sense (0 - 1000)

Draw a picture to represent the number:

Write to describe your picture:
I did four squares to represent four hundred and I did six lines to represent sixty and one dot to represent one, so altogether it is four hundred sixty-one.

Write the number in expanded form:
400 + 60 + 1 = 461

Create 3 equations that equal the number:
1. 1000 - 450 = 550
2. 500 - 90 = 410
3. 600 - 139 = 461
4. (10x10) + (10x10) + (10x10) + (10x10) + 2 - 1 = 461
5. 462 - 1 = 461
6. 30x30 - 500 + 61 = 961
7. 10x10 + 300 + 50 + 1 = 461
8. 10x10 + 200 + 100 + 61 = 461

Write a real life example of this number:
First there were four hundred sixty-six people swimming in Calhoun Lake. Then a family of five left then there were 461 people left swimming in Calhoun Lake. Then there were nine hundred forty-two leaves on the tree. Then the next day forty-two fell of three days later there were four hundred sixty-one leaves left on the tree.

Place the number on the line below, so that you can show where it fits.

<table>
<thead>
<tr>
<th>Reasoning &amp; Analyzing</th>
<th>Understanding &amp; Solving</th>
<th>Communicating &amp; Representing</th>
<th>Connecting &amp; Reflecting</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 2 3 4</td>
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</tr>
</tbody>
</table>

Grade 3
Student Numeracy Assessment and Practice (SNAP) March 3, 2016
Number Sense (0 - 1000)

Draw a picture to represent the number:

- 619
- 614
- 609
- 604
- 599
- 594
- 589
- 584
- 579

Write to describe your picture:

\[
\begin{align*}
\square &= 100 \\
\Box &= 10 \\
\bigcirc &= 1.
\end{align*}
\]

Write the number in expanded form:

\[500 + 70 + 9\]

Count backwards by 2, 5 or 10 from the number (circle one):

- 579
- 569
- 559
- 549
- 539
- 529
- 519
- 509
- 490

Create 3 equations that equal the number:

\[
\begin{align*}
\frac{829}{579} &= 1.45 \\
\frac{2.889}{579} &= 0.5 \\
3 \times 500 + 70 + 9 &= 579
\end{align*}
\]

Write a real life example of this number:

Somebody could have read 579 books from the school library.

Place the number on the line below, so that you can show where it fits.
SNAP

Number Sense (0 - 1000)

Draw a picture to represent the number:

461

Write to describe your picture:

I drew 4
4
Moner bags
1
Each Moner bag $100 and the
2
bills were worth $10 and the coin was $1.

Write the number in expanded form:

400 + 60 + 1

Create 3 equations that equal the number:

1000 + 2 = 2 x 2 x 5
2 - 500 - 2000 + 5
4 x 5 x 5 x 2 = 100 + 250 -
50 + 0 + 1 = 1000 + 10
5 x 5 x 5 x 5 = 25 x 125 -
10 - 10 + 5 + 11 = 461

Write a real life example of this number:

Yesterday I went on a walk 400 leaves on a tree, and one tree 25
60 leaves, and on a third tree I saw
1 leaf.

Count backwards by 2, 5 or 10 from the number (circle one):

451
441
431
421
411
401
391
381
371

Place the number on the line below, so that you can show where it fits.

0 50 100 250 500 750 1000

Reasoning & Analyzing

1 2 3 4

Understanding & Solving

1 2 3 4

Communicating & Representing

1 2 3 4

Connecting & Reflecting

1 2 3 4

Total

1 2 3 4
Problem: 601 - 348

Estimate – justify your thinking:

I used mental math and got 253.

Represent – with a sketch or drawing:

I drew some bags. The first bag had 601 candies in it. Some put 348 candies in a smaller bag. Now there are 253 left.

Calculate:

\[
\begin{array}{c}
591 \\
-348 \\
\hline
243
\end{array}
\]

Explain your sketch:

Someone bought 601 groceries. They ate 348 of the groceries. Now they have 253 groceries.

Write a Real Life Example:

mental math because I knew how.
Subtraction SNAP

Problem: \[511 - 488 = \]

Estimate – Justify your thinking:
I think the number 15 is 0 because I rounded 511 to 500 and 488 to 500 and subtracted it and I got 0.

Represent – with a sketch or drawing:
\[\begin{array}{c}
511 \\
- 488 \\
\hline
23
\end{array}\]

Explain your sketch:
I drew 3 bags, one with 511 in it, one with 488 in it, and one with 23 in it.

Write a Real Life Example:
There are 511 cakes at a bakery. 488 people buy a cake, then there were only 23 cakes left.

Reflect:
The RLT was easy because it was easy to think of something.

Grade 3

<table>
<thead>
<tr>
<th>Reasoning &amp; Analyzing</th>
<th>Understanding &amp; Solving</th>
<th>Communicating &amp; Representing</th>
<th>Connecting &amp; Reflecting</th>
<th>Total</th>
</tr>
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<tr>
<td>1 2 3 4</td>
<td>1 2 3 4</td>
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<td>1 2 3 4</td>
<td>1 2 3 4</td>
</tr>
</tbody>
</table>
Subtraction SNAP

Problem: 511 - 488 = 0

Estimate - justify your thinking:
I rounded 511 to 500 and 488 to 500 and then subtract it to get 0.

Represent - with a sketch or drawing:

Calculate:
4 10
511
-488
-----
0 23

Explain your sketch:
I have 511 things in one bag and 488 things in the other bag and the answer is the last bag.

Write a Real Life Example:
There are 511 books in the Library. 488 Books get chosen. There are 23 are left in the Library.

Reflect:
The RLQ was easy because I love to read books.