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
Number Sense (Integers)

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.

Count backwards by _____ from the number.

Count forwards by _____ from the number.
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</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Picture Box</td>
<td></td>
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<td></td>
</tr>
<tr>
<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>
<td></td>
</tr>
<tr>
<td>• Inaccurate</td>
<td>• Partially accurate</td>
<td>• Accurate</td>
<td>• Accurate</td>
<td></td>
</tr>
<tr>
<td><strong>Describe Picture</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<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>
<td></td>
</tr>
<tr>
<td>• Communication is not clear</td>
<td>• Partially communicated</td>
<td>• Clearly communicated</td>
<td>• Clearly communicated</td>
<td></td>
</tr>
<tr>
<td><strong>Expanded Form</strong></td>
<td></td>
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</tr>
<tr>
<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>
<td></td>
</tr>
<tr>
<td><strong>Understanding and Solving 3 Equations</strong></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<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>
<td></td>
</tr>
<tr>
<td><strong>Connecting and Reflecting Real Life Connection</strong></td>
<td></td>
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</tr>
<tr>
<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 real life example is provided</td>
<td></td>
</tr>
<tr>
<td>• Demonstrates understanding of the number value</td>
<td>• Demonstrates understanding of the number value</td>
<td>• Demonstrates insight of the number value</td>
<td>• Demonstrates insight of the number value</td>
<td></td>
</tr>
<tr>
<td><strong>Reasoning and Analyzing Number Line</strong></td>
<td></td>
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</tr>
<tr>
<td>• Incorrect estimate of placement of number on provided number line</td>
<td>• Partially 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 benchmarks</td>
<td>• Correct estimate of placement of number on provided number line with increasing complexity</td>
<td></td>
</tr>
<tr>
<td><strong>Counting Forwards and Backwards</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Incomplete and inaccurate</td>
<td>• Partially complete and accurate</td>
<td>• Complete and accurate</td>
<td>• N/A</td>
<td></td>
</tr>
</tbody>
</table>

Student Numeracy Assessment and Practice (SNAP)
**Operations** Fraction, Decimal, Percent SNAP

**Operation:**

**Estimate – justify your thinking:**

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

**Calculate:**

**Explain your sketch:**

**Write a Real Life Example or Word Problem:**

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**Reflect:**

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**Communicating & Representing**

1 2 3 4

Entire assessment

**Understanding & Solving**

1 2 3 4

Entire assessment except reflection

**Connecting & Reflecting**

1 2 3 4

Real-life & reflection

**Reasoning & Analyzing**

1 2 3 4

Estimate

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Grade 7

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>
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</thead>
<tbody>
<tr>
<td><strong>Communicating and Representing</strong></td>
<td>---</td>
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<td>---</td>
<td>---</td>
</tr>
<tr>
<td><strong>Entire Assessment</strong></td>
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</tr>
<tr>
<td>Student understanding and application of learning outcomes is not evident</td>
<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>
</tr>
<tr>
<td><strong>Understanding and Solving</strong></td>
<td></td>
<td></td>
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</tr>
<tr>
<td><strong>Estimate, Draw, Calculate Boxes, and Real Life Applications</strong></td>
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</tr>
<tr>
<td>Strategies to solve the problem and show understanding are not evident</td>
<td>Strategies to correctly solve the problem and show understanding are simple or limited</td>
<td>Uses multiple <em>grade appropriate</em> strategies to correctly solve the problem and show understanding</td>
<td>Uses multiple strategies <em>(some beyond grade expectations)</em> to correctly solve the problem and show understanding</td>
<td></td>
</tr>
<tr>
<td>Real life applications are not evident</td>
<td>The real life application is not relevant</td>
<td>The real life application is relevant</td>
<td>The real life application is relevant and insightful</td>
<td></td>
</tr>
<tr>
<td><strong>Connecting and Reflecting</strong></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td><strong>Real Life Example</strong></td>
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</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>Reflection</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<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>
<td></td>
</tr>
<tr>
<td><strong>Reasoning and Analyzing</strong></td>
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<td></td>
</tr>
<tr>
<td><strong>Estimate Box</strong></td>
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<td></td>
</tr>
<tr>
<td>Estimation is not evident</td>
<td>Estimation is simple</td>
<td>Estimation is reasonable</td>
<td>Estimation is accurate</td>
<td></td>
</tr>
<tr>
<td>Mental math strategies are not used</td>
<td>Minimal use of mental math strategies</td>
<td>Demonstrates the use of mental math strategies</td>
<td>Demonstrates the use of mental math strategies</td>
<td></td>
</tr>
<tr>
<td>Connections are not evident</td>
<td>Simple connections are evident</td>
<td>Reasonable and logical connections are evident</td>
<td>Insightful and logical connections are evident</td>
<td></td>
</tr>
</tbody>
</table>