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 (e.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
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.

Communicating & Representing
- Drawing, description, expanded form

Understanding & Solving
- 3 equations

Connecting & Reflecting
- Real-life

Reasoning & Analyzing
- Skip counting & number line

Grade 5

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</strong></td>
<td><strong>Picture Box</strong></td>
<td><strong>Picture Box</strong></td>
<td><strong>Picture Box</strong></td>
<td><strong>Picture Box</strong></td>
</tr>
<tr>
<td><strong>Describe Picture</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>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</strong></td>
<td><strong>3 Equations</strong></td>
<td><strong>3 Equations</strong></td>
<td><strong>3 Equations</strong></td>
<td><strong>3 Equations</strong></td>
</tr>
<tr>
<td><strong>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</strong></td>
<td><strong>Real Life Connection</strong></td>
<td><strong>Real Life Connection</strong></td>
<td><strong>Real Life Connection</strong></td>
<td><strong>Real Life Connection</strong></td>
</tr>
<tr>
<td><strong>Number Line</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 real life example is provided</td>
</tr>
<tr>
<td></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>• Demonstrates understanding of the number value</td>
<td>• Demonstrates understanding of the number value</td>
</tr>
<tr>
<td><strong>Reasoning and Analyzing</strong></td>
<td><strong>Number Line</strong></td>
<td><strong>Number Line</strong></td>
<td><strong>Number Line</strong></td>
<td><strong>Number Line</strong></td>
</tr>
<tr>
<td><strong>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>
Operation:

Estimate – justify your thinking:

Represent - with a sketch or drawing:

Calculate:

Explain your sketch:

Write a Real Life Example or Word Problem:

Reflect:

Communicating & Representing
Understanding & Solving
Connecting & Reflecting
Reasoning & Analyzing

1 2 3 4
1 2 3 4
1 2 3 4
1 2 3 4

Entire assessment
Entire assessment except reflection
Real-life & reflection
Estimate
## 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> 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></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> Estimate, Draw, Calculate Boxes, and Real Life Applications</td>
<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 grade appropriate strategies to correctly solve the problem and show understanding</td>
<td>Uses multiple strategies (some beyond grade expectations) to correctly solve the problem and show understanding</td>
</tr>
<tr>
<td></td>
<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>
</tr>
<tr>
<td><strong>Connecting and Reflecting</strong> Real Life Example</td>
<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>
</tr>
<tr>
<td></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><strong>Reasoning and Analyzing</strong> Estimate Box</td>
<td>Estimation is not evident</td>
<td>Estimation is simple</td>
<td>Estimation is reasonable</td>
<td>Estimation is accurate</td>
</tr>
<tr>
<td></td>
<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>
</tr>
<tr>
<td></td>
<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>
</tr>
</tbody>
</table>
SNAP
Number Sense (0 - 1 000 000)

Draw a picture to represent the number.

<table>
<thead>
<tr>
<th>755,197</th>
<th>755,188</th>
<th>755,179</th>
</tr>
</thead>
<tbody>
<tr>
<td>755,170</td>
<td>755,161</td>
<td>755,152</td>
</tr>
<tr>
<td>755,143</td>
<td>755,134</td>
<td>755,125</td>
</tr>
</tbody>
</table>

Count forwards by 9 from the number.

List 3 equations that equal the number:

\[
\begin{align*}
750,000 + 5,125 &= 755,125 \\
755,125 + 50,000 &= 805,125 \\
1,000,000 + 55,125 &= 1,055,125
\end{align*}
\]

Write a real life example of this number:

We bought an ugly house in Vancouver for 755,125 $.

Write the number in expanded form:

\[
700,000 + 50,000 + 5,000 + 100 + 20 + 5
\]

Count backwards by 8 from the number.

<table>
<thead>
<tr>
<th>755,125</th>
<th>755,117</th>
<th>755,109</th>
</tr>
</thead>
<tbody>
<tr>
<td>755,101</td>
<td>755,092</td>
<td>755,084</td>
</tr>
<tr>
<td>755,076</td>
<td>755,068</td>
<td>755,060</td>
</tr>
</tbody>
</table>

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

0 - 250,000 - 500,000 - 750,000 - 1,000,000

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

Grade 5

Student Numeracy Assessment and Practice (SNAP) March 3, 2016
SNAP
Number Sense (0 - 1 000 000)

Draw a picture to represent the number.

\[ \square \times 219 \times 8 \times 4 \times 1 \]

Write to describe your picture:
There are 219 thousands 8 hundreds 4 tens and 1 one.

Write the number in expanded form:
\[ 2,000,000 + 10,000 + 9,000 + 800 + 40 + 1 \]

Create 3 equations that equal the number:

\[
\begin{align*}
100,000 + 119,841 & = 219,841 \\
219,841 & = 219,841 \\
200,000 + 19,811 & = 219,841
\end{align*}
\]

Write a real life example of this number:
I bought an apartment in Chilliwack for 219,841 last month.

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

0 100,000 200,000 300,000 400,000 500,000 1,000,000

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

Grade 5

Student Numeracy Assessment and Practice (SNAP) March 3, 2016
Division SNAP

Problem: \[ 433 \div 4 \]

Estimate – justify your thinking:
\[
\frac{100}{4} \div 00
\]

Represent - with a sketch or drawing:
\[
\begin{array}{cccc}
108 & 108 & 108 & 108 \\
\end{array}
\]

Calculate:
\[
\begin{array}{c}
433 \\
44 \\
33 \\
32 \\
0 \end{array}
\]

Explain your sketch:
I split 400 into 4 groups, 100 were in each group.

Write a Real Life Example:
There was 433 stuffed animals needed stuffed animals to sell, 108 went to each store and I got a free one for myself.

Reflect:
It was all easy, my favourite part was calculation.

Reasoning & Analyzing | Understanding & Solving | Communicating & Representing | Connecting & Reflecting | Total
---|---|---|---|---
1 2 3 4 | 1 2 3 4 | 1 2 3 4 | 1 2 3 4 | 1 2 3 4

Grade 5

Student Numeracy Assessment and Practice (SNAP) March 3, 2016
(Adapted from ANIE)
Division SNAP

Problem: 494 ÷ 5 =

Estimate – justify your thinking:

500 ÷ 5 = 100

Represent – with a sketch or drawing:

494 ÷ 5 = 98.8

4 pounds left over.

There are 494 pounds of oil, each barrel has 98.8 lbs of oil.
4 pounds of oil are left over.

Calculate:

5 194
5 194
5 194
5 194
5 194
0 40
0 40
0 4

Explain your sketch:

Write a Real Life Example:

There are 494 copies of the same book. There are 5 libraries that need that book. How many books will each library get if all of them get the same amount? Each will get 98 copies with 4 left over.

Reflect:

It was all pretty simple, but my favourite parts were the real life example and the calculate.

Reasoning & Analyzing | Understanding & Solving | Communicating & Representing | Connecting & Reflecting | Total
---|---|---|---|---
1 2 3 4 | 1 2 3 4 | 1 2 3 4 | 1 2 3 4 | 1 2 3 4

Grade 5

Student Numeracy Assessment and Practice (SNAP) March 3, 2016
(Adapted from ANIE)
Problem: 433 ÷ 4

Estimate – justify your thinking:
433 ÷ 400
4

400

Represent - with a sketch or drawing:

Explain your sketch:
I split 433 jelly beans to 4 people. Each person got 108 jelly beans.

Calculate:

\[
\begin{array}{c}
4 \quad \overline{\div} \quad 433 \\
\hline
\quad \quad \quad 108.01 \\
\quad \quad \quad 32 \\
\quad \quad \quad 32 \\
\quad \quad \quad 1
\end{array}
\]

Write a Real Life Example: I have $433. I gave 4 people some of the money. Each person got $108, with $1 left over for me to buy candy!

I found everything easy. I am happy doing the real life example.

Reflect:

<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>
<td>1 2 3 4</td>
<td>1 2 3 4</td>
<td>1 2 3 4</td>
<td>1 2 3 4</td>
</tr>
</tbody>
</table>

Grade 5

Student Numeracy Assessment and Practice (SNAP) March 3, 2016
(Adapted from ANIE)
Problem: \( 494 \div 5 \)

Estimate – justify your thinking:

\[ 500 \div 5 = 100 \]

Represent - with a sketch or drawing:

\[ \begin{array}{c}
494 \\
\downarrow \\
\downarrow \\
\downarrow \\
\downarrow \\
\downarrow \\
00000
\end{array} \]

Calculate:

\[ 5 \longrightdiv{494} \]

\[ 45 \downarrow \]

\[ 044 \]

\[ 40 \]

\[ 04 \]

Explain your sketch:

I am splitting 494 between 5 groups.

Write a Real Life Example:

A candy factory made 494 candies. Five candy stores wanted the candy. Each store got 94 candies and there was 4 left over.

Reflect:

I think it was all easy. My favourite part is long division.

Grade 5

Student Numeracy Assessment and Practice (SNAP) March 3, 2016
(Adapted from ANIE)
Problem: \[ 494 \div 5 \]

Estimate – justify your thinking:

\[ 500 \div 5 = 100 \]

Represent – with a sketch or drawing:

There are 494 pieces of gold and 5 boxes to split it through. How many pieces per box?

\[ \frac{494}{5} = \frac{45}{1} \]

\[ 44 \]

\[ 4 \]

Explain your sketch:

Calculate:

\[ 98 \]

Write a Real Life Example:

There were 494 pieces of gold found in the river and 5 miners wanted to split it. How many pieces would each miner get?

Reflect:

I think that the calculation was a bit hard but the rest was easy.

Reasoning & Analyzing | Understanding & Solving | Communicating & Representing | Connecting & Reflecting | Total
--- | --- | --- | --- | ---
1 2 3 4 | 1 2 3 4 | 1 2 3 4 | 1 2 3 4 | 1 2 3 4

Grade 5

Student Numeracy Assessment and Practice (SNAP) March 3, 2016
(Adapted from ANIE)