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 – \textit{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 – \textit{Number Sense} up to 1 000 000
May/June – Any six-digit number
Outcome #2 – \textit{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 – \textit{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 – \textit{Operations} Divisor is a one-digit whole number. The dividend can be any four-digit number with hundredths. For example: \(45.34\div5=n\); \(71.76\div3=n\); *
\textit{Note: Ensure that the quotient of the question does not exceed thousandths.}

**Grade 7:**
Outcome #1 – \textit{Number Sense} Integers
May/June – Any two-digit negative whole number.
Outcome #2 – \textit{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 – \textit{Number Sense} Percent greater than 100 (e.g. 140%)
Outcome #2 – \textit{Operations} with fractions - addition (.g. 1/5 + 6/7 = ___)

**Optional Grade 9:**
Outcome #1 – \textit{Number Sense} Exponents e.g. \(5^3\)
Outcome #2 – \textit{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 - 10 000)**

- **Draw** to represent the value of the number.
- **Write** to describe your picture:
- **Create 3 equations** that equal the number:
- **Write** the number in expanded form:
- **Write a real life example** that shows the value of the number:
- **Show where the number belongs on the number line.**

**Grade 4**

- **Communicating & Representing**
  - Drawing, description, expanded form
- **Understanding & Solving**
  - 3 equations
- **Connecting & Reflecting**
  - Real-life
- **Reasoning & Analyzing**
  - Skip counting & number line

Name: __________________
Date: __________________
## Number Sense Rubric

**SNAP (Student Numeracy Assessment & Practice)**

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

---

**Communicating & Representing:**

1.2.3.4

**Understanding & Solving:**

1.2.3.4

**Connecting & Reflecting:**

1.2.3.4

**Reasoning & Analyzing:**

1.2.3.4

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Grade 4

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></td>
<td></td>
<td></td>
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</tr>
<tr>
<td><em>Entire Assessment</em></td>
<td></td>
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</tr>
<tr>
<td>• Communication (written, pictorial or symbolic) of understanding is not evident</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Communicates (written, pictorial or symbolic) limited understanding</td>
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<tr>
<td><strong>Understanding and Solving</strong></td>
<td></td>
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</tr>
<tr>
<td><em>Estimate, Draw, Calculate Boxes, and Real Life Applications</em></td>
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</tr>
<tr>
<td>• Strategies to solve the problem and show understanding are not evident</td>
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<tr>
<td>• Real life applications are not evident</td>
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<tr>
<td>• Strategies to correctly solve the problem and show understanding are simple or limited</td>
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<tr>
<td>• The real life application is not relevant</td>
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<tr>
<td><strong>Connecting and Reflecting</strong></td>
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</tr>
<tr>
<td><em>Real Life Example</em></td>
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<td></td>
</tr>
<tr>
<td>• Real life applications and connections to mathematical concepts are not evident</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>• Real life applications and connections to mathematical concepts are limited</td>
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</tr>
<tr>
<td>• Real life applications and connections to mathematical concepts are evident</td>
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<tr>
<td><strong>Reflection</strong></td>
<td></td>
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<tr>
<td>• Simple reflections on mathematical thinking is not evident</td>
<td></td>
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<tr>
<td>• Simple reflections on mathematical thinking are evident</td>
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<tr>
<td>• Some insight on mathematical thinking is evident</td>
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<tr>
<td>• Insightful reflection on mathematical thinking is evident</td>
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<tr>
<td><strong>Reasoning and Analyzing</strong></td>
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<tr>
<td><em>Estimate Box</em></td>
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<tr>
<td>• Estimation is not evident</td>
<td></td>
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<tr>
<td>• Mental math strategies are not used</td>
<td></td>
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<tr>
<td>• Connections are not evident</td>
<td></td>
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<td></td>
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<tr>
<td>• Estimation is simple</td>
<td></td>
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</tr>
<tr>
<td>• Minimal use of mental math strategies</td>
<td></td>
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<tr>
<td>• Simple connections are evident</td>
<td></td>
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<td></td>
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<tr>
<td>• Estimation is reasonable</td>
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<tr>
<td>• Demonstrates the use of mental math strategies</td>
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<tr>
<td>• Reasonable and logical connections are evident</td>
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<tr>
<td><strong>Estimation is accurate</strong></td>
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<tr>
<td>• Demonstrates the use of mental math strategies</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Insightful and logical connections are evident</td>
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</tbody>
</table>
SNAP
Number Sense (0 - 10 000)

Count backwards by 5 from the number.

Draw a picture to represent the number:
6662
6652
6642
6632
6622
6612
6602
6592
6582

Write to describe your picture:
I drew 6 thousand blocks 5 hundred squares 8 ten sticks and 2 dots this is what I drew.

Write the number in expanded form:
6000 + 500 + 80 + 2

Count forwards by 10 from the number.

6582
6577
6572
6567
6562
6557
6552
6547
6542

Create 3 equations that equal the number:
1000 + 1000 + 1000
+ 100 + 1000 + 1000 + 500
+ 20 + 10 + 2 = 6582

6582 + 1 - 1 = 6582

6582 + 0 = 6582

Write a real life example of this number:
there were 6500 people at the parade then 82 more people came how many people are all together?

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

0

5000 6000 7000 8000 9000

1 2 3 4

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

Grade 4

Student Numeracy Assessment and Practice (SNAP) March 3, 2016
Draw a picture to represent the number.

\[ \square = 1000 \]
\[ \square = 100 \]
\[ \square = 10 \]
\[ \square = 1 \]

Write to describe your picture:

\[ 8000 + 900 + 70 + 9 \]

Write the number in expanded form:

\[ 8979 \]

Create 3 equations that equal the number:

\[ \frac{3546}{5433} = \frac{8979}{8979} \]

Write a real life example of this number:

At Run for Water and 8974 people were doing the 10k run.

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

0 8979

5000

10 000

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 4

Student Numeracy Assessment and Practice (SNAP) March 3, 2016
Problem: \[218 \times 5 = 1090\]

**Estimate – justify your thinking:**
I rounded to the nearest hundreds.

**Represent – with a sketch or drawing:**
- 218 leaves
- 218 leaves
- 218 leaves
- 218 leaves
- 218 leaves

**Explain your sketch:**
5 trees of 218 leaves all together there is 1090 leaves.

**Write a Real Life Example:**
15 trees each tree has 11
- 218 apples all together there is 1090 apples.

**Reflect:** The calculate was easy because it's counting by 5's.

<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>
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</tr>
</tbody>
</table>

Grade 4

Student Numeracy Assessment and Practice (SNAP) March 3, 2016
(Adapted from ANIE)
Problem: \( 624 \times 6 = \)

Estimate – justify your thinking:
I think the answer is 3600 because I rounded 624 to 600 hundred and added it 6 times.

Represent – with a sketch or drawing:

```
624  
624  
624
```

```
624  
624  
624
```

```
624  
624  
624
```

Calculate:

\[
\begin{array}{c}
12 \\
624 \\
\times \\
6 \\
\hline
3744
\end{array}
\]

Explain your sketch:
I drew 6 boxes each with 624 marbles in each altogether there are 3744 marbles.

Write a Real Life Example:
I have 6 big long wood boxes and each of them I'd have 624 carrot seeds and altogether I have 3744 carrot seeds altogether.

Reflect:
I think the calculate was easy for me, because multiplication isn't hard for me.

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

Student Numeracy Assessment and Practice (SNAP) March 3, 2016
(Adapted from A’
Problem: \(622 \times 3 = \)

**Estimate – justify your thinking:**
I think the number is 1800 because 622 is closer to 600 and 600 \(\times 3 = 1800\)

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

- \(622\)
- \(622\)
- \(622\)

**Calculate:**

\[
\begin{align*}
622 \\
\times 3 \\
\hline
1866
\end{align*}
\]

**Explain your sketch:**
I drew 3 bags of 622 to get my answer.

**Write a Real Life Example:**
I there was 3 pens and in each pen there is 622 horses and you multiplied 622 \(\times 3\) you would get the total 1866.

**Reflect:**
I thought the estimating was easy because I knew what to do.
Problem: 622 x 3 =

Estimate – justify your thinking:

1800
I think it's 1800
because I rounded to the nearest hundred that is why I think it's 1800.

Represent - with a sketch or drawing:

622
622
622 = 1866

Calculate:

622
x 3
1866

Explain your sketch:

There were 3 schools. Each school has 622 kids in side altogether there were 1866.

Write a Real Life Example:

There were 3 schools each school has 622 book inside altogether there were 1866.

Reflect:

I think the calculation was easy because I know how to multiply.

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