# BG Performance Standaris 

## Numeracy

## GRADE 1

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## Numeracy in Grade 1

In Grade 1, many mathematical activities involve numeracy. Students are encouraged to apply mathematical concepts and skills to simple but realistic problems or tasks provided by their teacher.

Often all or part of the numeracy task is completed collaboratively. When students do work independently, they have usually had previous opportunities to observe and complete similar explorations or tasks with the support of the teacher and peers. Students are often asked to draw or explain their thinking orally. The following briefly describes typical Grade 1 numeracy tasks. For quick reference, these have been grouped according to purpose. In fact, a single numeracy task or problem may address several purposes.

## MONEY TASKS

- Buy real candy from a pretend classroom candy store using coin stamps.
- Buy real stickers from a pretend classroom store with a set amount of money. (e.g., If you had 16 cents, show what you could buy.)
- Look at a bowl with three kinds of candy, each worth a different amount. Figure out how much the bowl of candy is worth and show two different ways to buy it using coin stamps or cut-outs.


## CHANCE TASKS

- Predict the outcome of spinning a spinner 10 times and then create a spinner and check the predictions.


## DATA ANALYSIS

- Survey classmates about favourite snack foods, pets, etc., and record findings on a two-column tally chart and bar graph. Explain the results.
- Interview their own and another class about how they travelled to school. Compare the results for the two classes.
- Count computers in various classrooms in the school, and then create a pictograph and bar graph. Explain what the graph indicates and predict how many computers will be in a new classroom when Grade 7s are added to the school.
- Collect empty juice boxes. Predict the total number and the number of flavours, and then sort, count, tally, and create a bar graph. List two conclusions that can be drawn from the graph.
- Survey peers about what toppings they like on pizza. Tally, create a bar graph, and write a conclusion.
- Choose an attribute and use it to sort buttons.


## MEASUREMENT AND OTHER APPLICATIONS OF SHAPE AND SPACE

- Decide how to share granola fairly using non-standard containers.
- Estimate the relative weight of five objects; then weigh the objects and compare estimates to actual.
- Look at pictures of five containers of different shapes and then choose the one they would like to have full of their favourite drink and explain why.
- Classify, describe, and arrange five objects from a pencil case.
- Cut out pictures of containers, and arrange them from smallest to largest, giving reasons.
- Plan a class pizza party. Use cut-outs to design a pizza and calculate ingredients needed.
- Use a tangram set to solve a puzzle.
- Sequence daily events in order of time.


## NOTE:

While the Rating Scale for Grade 1 follows the same format as that of other grades, the contents of various sections are tailored to reflect some of the specific issues related to early numeracy.

## Quick Scale: Grade 1 Numeracy

This Quick Scale is a summary of the criteria described in detail in the Rating Scale that follows. These criteria are developmental and can be appropriately used by March-April of Grade 1.

| Aspect | Not Yet Within Expectations | Meets Expectations (Minimal Level) | Fully Meets Expectations | Exceeds Expectations |
| :---: | :---: | :---: | :---: | :---: |
| SNAPSHOT | The student is often unable to make sense of simple mathematical situations. | The student tries to make sense of simple mathematical situations. May need prompting. | The student is able to make sense of simple mathematical situations. Shows increasing confidence. | The student makes sense of an increasing range of mathematical situations. Confident, flexible, and persevering. |
| DISPOSITIONS AND <br> APPLICATIONS* <br> - making sense of mathematical situations <br> - appreciating how mathematics can be used <br> - estimates, predicts | - often does not attempt to make sense of simple mathematical situations <br> - has difficulty seeing the application of mathematics to everyday problems <br> - has difficulty estimating | - attempts to make sense of some simple mathematical situations <br> - with support, identifies ways to apply mathematical skills to everyday problems that are similar to those previously experienced <br> - in familiar situations, with support, can predict and estimate results | - tries to make sense of simple mathematical situations <br> - with some prompting, identifies ways that mathematical concepts and skills can be used to solve everyday problems <br> - in familiar situations, can predict and estimate results | - tries to make sense of an increasing range of mathematical situations; often inventive <br> - independently applies mathematical concepts to everyday problems;shows curiosity and takes risks <br> - in an increasing range of situations, can predict and estimate results |
| STRATEGIES AND <br> APPROACHES <br> - using what is known <br> - showing flexibility and perseverance <br> - following modelled procedures if asked <br> - problem-solving | - little confidence; unable to connect prior knowledge to a particular task <br> - no flexibility or perseverance <br> - requires one-to-one support to follow procedures, complete tasks <br> - unable to analyze simple problems or recall strategies | - often needs help to draw on prior knowledge; reluctant to create own procedures <br> - limited flexibility and perseverance <br> - generally able to follow procedures that are modelled step by step <br> - may need help to analyze simple problems, make a plan, and apply strategies | - tries to draw on prior knowledge; often able to create own procedures <br> - some flexibility and perseverance <br> - follows modelled procedures when asked <br> - analyzes simple problems to develop a plan;selects and uses appropriate strategies recently experienced | - confidently uses prior knowledge; creates own procedures <br> - increasing flexibility and perseverance <br> - follows modelled procedures when asked; may find alternative procedure <br> - analyzes problems to develop an efficient plan; selects and uses a range of appropriate strategies |
| ACCURACY <br> - ordering and classifying <br> - recognizing and using numbers <br> - counting <br> - addition and subtraction | - needs one-to-one support to sort, order, and classify objects using one obvious attribute <br> - may recognize and use numbers from zero to 10 ; count to 10 <br> - with one-to-one support, may be able to add and subtract to 5 | - sorts, orders, and classifies objects with large differences using one obvious attribute <br> - recognizes and uses numbers from zero to 100 ; counts by $1 \mathrm{~s}, 2 \mathrm{~s}, 5 \mathrm{~s}$, and 10 s to 100 ; several errors <br> - sometimes adds and subtracts accurately to 10 ; frequent errors | - sorts, orders, and classifies objects accurately using one attribute <br> - recognizes and uses numbers from zero to 100; counts by $1 \mathrm{~s}, 2 \mathrm{~s}, 5 \mathrm{~s}$, and 10 s to 100; few errors <br> - adds and subtracts accurately to 10; may make minor errors | - sorts, orders, and classifies objects accurately using two or more attributes <br> - recognizes and uses numbers from zero to 100 ; counts by $1 \mathrm{~s}, 2 \mathrm{~s}, 5 \mathrm{~s}$, and 10 s to 100 , with ease <br> - adds and subtracts beyond 10 with ease |
| REPRESENTATION AND <br> COMMUNICATION <br> - writing numbers <br> - representing visually <br> - using mathematical terms <br> - demonstrating and explaining | - difficulty writing numerals <br> - difficulty representing problems, processes, and solutions visually <br> - may use simple ordering and directional terms <br> - unable to explain or demonstrate processes or results | - writes numerals to 50 with few errors <br> - with minimal support, represents problems, processes, and solutions visually <br> - uses most simple terms correctly <br> - with prompting, shows or explains parts of simple processes and results | - writes numerals to 50 <br> - represents problems, processes, and/or solutions visually <br> - correctly uses simple terms <br> - with some prompting, demonstrates and orally describes processes and results | - writes numerals beyond 50 <br> - represents problems, processes, and solutions visually; may offer alternative representations <br> - correctly uses an increasing range of terms <br> - demonstrates and describes orally, in detail, processes and results; often uses own words |

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# Rating Scale: Grade 1 Numeracy 

| Aspect | Not Yet Within Expectations | Meets Expectations (Minimal Level) |
| :---: | :---: | :---: |
| SNAPSHOT | The student is often unable to make sense of simple mathematical situations. With support, may use numbers to 10 and simple ordering and directional terms. | The student tries to make sense of simple mathematical situations. May need prompting to use numbers; patterns; and simple descriptive, comparing, and directional terms. |
| DISPOSITIONS AND APPLICATIONS** <br> - making sense of mathematical situations <br> - appreciating how mathematics can be used <br> - making estimates, predictions | - often does not attempt to make sense of simple mathematical situations <br> - has difficulty seeing the relevance or application of mathematics to everyday problems; rarely uses counting or comparing to independently solve problems <br> - has difficulty making predictions or evaluating the reasonableness of a result (estimate); may offer wild guesses | - attempts to make sense of some simple mathematical situations; needs prompting and support for others <br> - with support, identifies ways to apply mathematical skills such as counting and comparing to everyday problems that are similar to those previously experienced <br> - in familiar situations, with support, can make predictions and evaluate the reasonableness of an answer or result (estimate) |
| STRATEGIES AND APPROACHES <br> - using what is known to figure out what is not known <br> - showing flexibility and perseverance <br> - following modelled procedures if asked <br> - analyzing problems <br> - selecting and applying problem-solving strategies | - shows little confidence in own knowledge and skill; may be unable to connect prior knowledge to a particular task <br> - does not show flexibility or perseverance <br> - requires one-to-one support to follow modelled procedures and complete all parts of the task <br> - unable to analyze simple problems <br> - may be unable to recall or select problem-solving strategies | - often needs prompting to draw on what is known in order to figure out what is not known; may be reluctant to create own procedures <br> - shows limited flexibility and perseverance; often needs support to continue with a challenging task <br> - generally able to follow procedures that are modelled one step at a time, often involving manipulatives; with two steps or more, may confuse order or make an inappropriate choice <br> - may need help to analyze simple problems and make a plan <br> - may recall some problem-solving strategies; may try to apply the same strategies for all problems |
| ACCURACY <br> - ordering and classifying <br> - recognizing and using numbers <br> - counting <br> - addition and subtraction | - needs one-to-one support to sort, order, and classify a small number of objects (e.g., two to three) using one obvious attribute <br> - may recognize and use numbers from zero to 10 with few errors; often needs one-to-one support for two-digit numbers <br> - uses one-to-one correspondence; may count to 10 <br> - with one-to-one support and manipulatives, may be able to add and subtract to 5 | - sorts, orders, and classifies objects that have relatively large differences using one obvious attribute; may make some errors <br> - recognizes and uses numbers from zero to 100 with several errors; may need direct support with larger numbers <br> - counts by $1 \mathrm{~s}, 2 \mathrm{~s}, 5 \mathrm{~s}$, and 10 s to 100 with several errors; may work slowly and need direct support with larger numbers <br> - with support, sometimes adds and subtracts accurately to 10 (using role-play, manipulatives, or diagrams); frequent errors |
| REPRESENTATION AND <br> COMMUNICATION <br> - writing numbers <br> - representing visually (e.g., pictures, models) <br> - using mathematical terms (e.g.,left/right; circle; likely/unlikely) <br> - demonstrating procedures; explaining results | - may have difficulty writing numerals consistently <br> - may have difficulty representing problems, processes, and/or solutions visually <br> - may use simple ordering and directional terms; with direct support, may use comparing terms <br> - unable to explain or demonstrate how to complete most or all parts of the task | - writes numerals up to 50 with few errors <br> - with minimal support, represents problems, processes, and/ or solutions visually <br> - with minimal prompting, uses most simple ordering, directional, comparing, and predicting terms correctly <br> - with prompting and support, can show or explain parts of simple processes and results experienced |

* Student performance that falls within the wide range of expectations for Grade 1 generally matches the Level $1 / 2$ descriptions in the reference set Evaluating Mathematical Development Across Curriculum.
**Some of the curriculum concepts and skills students are expected to apply in completing numeracy tasks are specific to the type of task. The shaded charts below the Rating Scale show some of the concepts and skills most likely to apply in Grade 1. Most numeracy tasks at this level engage students in creating their own procedures, most often using manipulatives, with support from the teacher.


## MONEY TASKS

- skip count by $10 \mathrm{~s}, 5 \mathrm{~s}$, and 2 s
- represent a given value of money in several ways using dimes, nickels, and pennies


## CHANCE TASKS

- predict the chance of an event using the terms certain, likely, and unlikely

| Fully Meets Expectations | Exceeds Expectations |
| :---: | :---: |
| The student is able to make sense of simple mathematical situations. Uses numbers; patterns; and simple descriptive, comparing, and directional terms with increasing confidence. | The student shows flexibility and perseverance to make sense of an increasing range of mathematical situations. Uses numbers; patterns; and ordering, directional, comparing, and predicting terms with ease and confidence. |
| - tries to make sense of simple mathematical situations <br> - with some prompting, identifies ways that mathematical concepts and skills can be used to solve everyday problems; often uses counting and comparing to solve problems <br> - in familiar situations, makes predictions and evaluates the reasonableness of answer or result (estimate) with minimal support, using number and spatial sense and recognition of patterns | - tries to make sense of an increasing range of mathematical situations; often inventive <br> - independently applies mathematical concepts to everyday problems; readily uses counting and comparing to solve problems; shows curiosity and takes risks <br> - in an increasing range of familiar and novel situations, makes predictions and evaluates reasonableness of answer or result (estimate), using number and spatial sense, and recognition of patterns |
| - tries, with some confidence, to draw on what is known in order to figure out what is not known; often able to create own procedures <br> - beginning to show some flexibility and perseverance when working on a challenging task <br> - follows modelled procedures when asked, often involving manipulatives <br> - analyzes simple problems to develop a plan <br> - selects and uses appropriate problem-solving strategies, most often those recently experienced | - confidently uses what is known in an attempt to figure out what is not known and create own procedures <br> - shows increasing flexibility and perseverance in a range of challenging situations <br> - follows modelled procedures when asked; may find an alternative procedure or shortcut <br> - analyzes simple problems to develop an efficient plan <br> - selects and uses a range of appropriate problem-solving strategies |
| - sorts, orders, and classifies objects accurately using one attribute <br> - recognizes and uses numbers from zero to 100 with few errors; may work slowly with larger numbers <br> - counts by $1 \mathrm{~s}, 2 \mathrm{~s}, 5 \mathrm{~s}$, and 10 s to 100 with few errors; may work slowly with larger numbers <br> - adds and subtracts accurately to 10 (using role-play, manipulatives, or diagrams); minor errors | - sorts, orders, and classifies objects accurately using two or more attributes <br> - recognizes and uses numbers from zero to 100 with ease <br> - counts by $1 \mathrm{~s}, 2 \mathrm{~s}, 5 \mathrm{~s}$, and 10 s to 100 with ease <br> - adds and subtracts beyond 10 with ease (may use mental math to arrive at a correct answer quickly); beginning to add and subtract two-digit numbers |
| - writes numerals up to 50 <br> - represents problems, processes, and/or solutions visually <br> - correctly uses simple ordering, directional, comparing, and predicting terms <br> - with some prompting, demonstrates and orally describes processes and results experienced | - writes numerals beyond 50 <br> - represents problems, processes, and/or solutions visually; may offer alternative or unique representations <br> - correctly uses an increasing range of ordering, directional, comparing, and predicting terms correctly; tries to be increasingly precise, often using qualifiers (e.g., a lot bigger) or comparing to familiar objects (e.g., as small as my finger) <br> - demonstrates and describes orally, in detail, processes and results experienced; often uses own words |

## DATA ANALYSIS

- collect information in a variety of ways to answer a given question or solve a problem
- represent the data collected on a concrete object graph and a pictograph, using one-to-one correspondence
- interpret data using appropriate language
- pose questions in relation to the data


## MEASUREMENT

- select an appropriate non-standard unit to measure length
- estimate, measure, record, compare, and order objects by length, height, and distance around, using non-standard units
- estimate, measure, record and compare volume/capacity of containers and the mass of objects, using non-standard units
- order events within one day over several days
- name, in order, days of the week and seasons of the year
- describe and compare temperatures using familiar terms


## OTHER APPLICATIONS OF SHAPE AND SPACE

- explore, classify, and describe 3-D objects according to one of several attributes
- match pictures and diagrams of 3-D objects with the object
- identify, name, and describe specific faces of 3-D objects (e.g., circles, triangles, rectangles)
- describe how specific shapes are alike/different
- describe relative position of objects using words such as near, far, left, right
- explore and describe reflections in a mirror
- match size and shape of figures by superimposing one on top of the other


## Sample 1: Sharing Cinnamon Buns <br> (Problem-Solving)

## CONTEXT

Students in this class are often given practical, everyday mathematical problems to work on collaboratively. They are encouraged to draw or talk about their thinking.

## MATHEMATICAL CONCEPTS

- analyze problems to develop a plan (e.g., relevant information)
- develop specific skills in selecting and using an appropriate problem-solving strategy or combination of strategies
- communicate an understanding of a problem and the process used to solve it


## PROCESS

The teacher brought a pan of homemade cinnamon buns to class and asked students to look at the pan and talk about sharing the buns.
Students were prompted with questions such as:

- How can we share them evenly?
- What is important to know to share them evenly?
- How can we show our thinking to explain how to share them?

Students were then asked to draw and write about their plan to share the buns evenly and to determine how many buns each person would get. (There were 39 buns and 24 students.)

## NOT YET WITHIN EXPECTATIONS

## Teacher's Observations

This student's drawing shows that he understood the problem-that there were people and buns and that they should share. When prompted, he tried to draw the correct number of people and buns. However, he was unable to think of any strategies for solving the problem.

|  | Not Yet | Meets | Fully | Exceeds |
| ---: | :--- | :--- | :--- | :--- |
| SNAPShot |  |  |  |  |
| Concepts |  |  |  |  |
| Strategies |  |  |  |  |
| accuracy |  |  |  |  |
| Representation |  |  |  |  |

- attempts to make sense of some simple mathematical situations
- has difficulty seeing the relevance of mathematics to everyday problems
- shows little confidence in own knowledge or skill; unable to connect what he knows to a particular task
- does not show flexibility or perseverance
- requires one-to-one support to complete parts of the task
- uses one-to-one correspondence
- unable to recall or select problem-solving strategies
- unable to explain or demonstrate how to complete all or most parts of the task



## MEETS EXPECTATIONS (MINIMAL LEVEL)

## Teacher's Observations

This student estimated that there would be two buns for each person. She drew the buns and then numbered the students below them. When she got to 24 , she realized there were not enough buns left for everyone to get another one, and she erased her numbers.

|  | Not Yet | Meets | Fully | Exceeds |
| ---: | :--- | :--- | :--- | :--- |
| SNAPShot |  |  |  |  |
| CONCEPTS |  |  |  |  |
| Strategies |  |  |  |  |
| AcCuracy |  |  |  |  |
| REPRESENTation |  |  |  |  |

- attempts to make sense of some simple mathematical situations
- uses counting and comparing to solve problems
- in familiar situations, with support, can make predictions and evaluate the reasonableness of an answer or results (estimate)
- often needs prompting to draw on what she knows in order to figure out what she doesn't know; reluctant to create own procedures
- recognizes and uses numbers from zero to 100
- writes numerals up to 50
- with prompting and support, can show or explain parts of simple processes


## FULLY MEETS EXPECTATIONS

## Teacher's Observations

This student used numbers for the buns and then subtracted one 24 times.
He determined that each person would get one and there would be 15 left.

- tries to make sense of simple mathematical situations
- uses counting to solve problems (appreciates how mathematics

|  | Not Yet | Meets | Fully | Exceeds |
| ---: | :--- | :--- | :--- | :--- |
| SNAPSHOT |  |  |  |  |
| CONCEPTS |  |  |  |  |
| STRATEGIES |  |  |  |  |
| ACCURACY |  |  |  |  |
| REPRESENTATION |  |  |  |  | can be used)

- tries, with some confidence, to draw on what he knows in order to figure out what he doesn't know
- show some flexibility and perseverance when working on a challenging task
- recognizes and uses numbers from zero to 100
- subtracts accurately
- writes numerals up to 50



## EXCEEDS EXPECTATIONS

## Teacher's Observations

This student approached the task very confidently. He immediately subtracted the number of students from the number of buns and determined that there would be 15 left over. He then set to work dividing up the 15 buns, first dividing them in half, then dividing the last three into "bites" (eighths).

|  | Not Yet | Meets | Fully | Exceeds |
| ---: | :--- | :--- | :--- | :--- |
| Snapshot |  |  |  |  |
| COncepts |  |  |  |  |
| Strategies |  |  |  |  |
| accuracy |  |  |  |  |
| Representation |  |  |  |  |

- inventive
- independently applies mathematical concepts to everyday problems; takes risks
- confidently uses what he knows in an attempt to figure out what he doesn't know and create own procedures
- shows flexibility and perseverance in a challenging situation
- analyzes a simple problem to develop an efficient plan
- selects and uses a range of problem-solving strategies
- recognizes and uses numbers from zero to 100 with ease
- subtracts beyond 10
- demonstrates and describes, in detail, processes and results; uses own words

$$
\begin{aligned}
& \text { To make it the same: } \\
& \text { I BUn } \\
& \text { half Bun } \\
& \text { a bite of Bun }
\end{aligned}
$$



## Sample 2: Candy Math (Money)

## CONTEXT

Students in this class had previous experience and practice with
denominations of coins, adding, and skip counting. This task requires them to combine those skills to solve simple money tasks.

## MATHEMATICAL CONCEPTS

- count by 5 s and 2 s
- represent a given value of money in several ways using dimes, nickels, and pennies


## PROCESS

Three types of candy were each given a value ( 2 cents, 5 cents, 4 cents).
Each student was given a hypothetical amount of money and asked to record what they would buy.

## NOT YET WITHIN EXPECTATIONS

## Teacher's Observations

This student usually receives one-on-one adult support but attempted this on his own after the teacher wrote in the initial amounts of money for him. He guessed rather than attempting to calculate the amount; however, he increased the quantity of candy as the price went up.


- attempts to make sense of some simple mathematical problems
- rarely uses counting to independently solve problems
- has difficulty making predictions or evaluating the reasonableness of a result (estimate); may offer wild guesses
- unable to connect what he knows to a particular task
- requires one-to-one support to follow modelled procedures and complete all parts of a task
- needs one-to-one support for two-digit numbers
- has difficulty writing numerals consistently
- unable to explain or demonstrate how to complete most or all parts of the task

$$
\begin{aligned}
& \text { 'Candy Math } \\
& 00=2 c \quad P=30 \\
& \text { व) } B=49 \\
& \text { If I had If o I would buy: } \\
& \begin{array}{l}
2 \text { Cadecans } \\
3+3=6
\end{array} \\
& \text { If I had } 32 \text { \& I would buy: } \\
& 4 \text { care cans and } 6 \text { cacilit pres } \\
& \text { If I had } 85 \text { a I would buy: } \\
& \text { tococlic cons and } 6 \text { cadecans. }
\end{aligned}
$$

## MEETS EXPECTATIONS (MINIMAL LEVEL)

## Teacher's Observations

This student drew some candies, counted up, and then added on. He used his fingers to count and also used mental calculation. He checked with the teacher to see if he was doing it correctly. He stopped at 85 cents, saying there was "too much adding."

|  | Not Yet | Meets | Fully | Exceeds |
| ---: | :--- | :--- | :--- | :--- |
| SNAPSHOT |  |  |  |  |
| CONcEPTS |  |  |  |  |
| Strategies |  |  |  |  |
| Accuracy |  |  |  |  |
| RePresentation |  |  |  |  |

- attempts to make sense of some simple mathematical situations; needs prompting and support for others
- reluctant to create own procedures
- often needs support to continue with a challenging task
- may work slowly and need direct support with larger numbers
- adds and subtracts accurately to 10
- with prompting and support, can show or explain parts of simple processes and results
Candy Math

If I had If \& I would buy:

If I had 32 © I would buy:

$[4]+4]+[4]+[4]+[4]+[$ 国 $+[0]=32$



## FULLY MEETS EXPECTATIONS

## Teacher's Observations

This student needed some prompting but then counted with her fingers and in her head to complete the first two parts of the task accurately.

- tries to make sense of simple mathematical situations
- with some prompting, identifies ways mathematical concepts and

|  | Not Yet | Meets | Fully | Exceeds |
| ---: | :--- | :--- | :--- | :--- |
| SNAPSHOT |  |  |  |  |
| CONCEPTS |  |  |  |  |
| STRATEGIES |  |  |  |  |
| ACCURACY |  |  |  |  |
| REPRESENTATION |  |  |  |  | skills can be used to solve everyday problems; often uses counting to solve problems

- often needs support to continue with a challenging task
- selects and uses appropriate problem-solving strategies
- recognizes and uses numbers from 1 to 100 with few errors
- counts by 2 s with few errors
- adds and subtracts to 18 with ease (may use mental math to arrive at a correct answer quickly)


## Candy Math



## EXCEEDS EXPECTATIONS

## Teacher's Observations

This student approached the task very confidently. She counted as she drew and, in the second part of the task, used mental math to multiply 4 by 8 .

- independently finds ways to apply mathematical concepts to everyday problems

|  | Not Yet | Meets | Fully | Exceeds |
| ---: | :--- | :--- | :--- | :--- |
| Snapshot |  |  |  |  |
| COncepts |  |  |  |  |
| Strategies |  |  |  |  |
| accuracy |  |  |  |  |
| Representation |  |  |  |  |

- confidently uses what she knows in an attempt to figure out what she doesn't know and create own procedures
- analyzes a simple problem to develop an efficient plan
- recognizes and uses numbers from zero to 100 with ease
- adds and subtracts beyond 10 with ease (may use mental math to arrive at a correct answer quickly)
- demonstrates and orally describes processes in detail; often in own words


## Candy Math


If I had if e I would buy:


## Sample 3: Computers in the School (Data)

## CONTEXT

This K-6 school is going to expand next year to include a class of Grade 7s. The teacher used this situation to create a relevant task for the students. Students in this class have completed several data tasks and have previous experience with bar graphs.

## MATHEMATICAL CONCEPTS

- collect information in a variety of ways to answer a given question
- represent the data collected on a pictograph, using one-to-one correspondence
- interpret data using appropriate language


## PROCESS

Small groups of two or three students were sent to each room in the school to count the computers. Each group contributed their results to a class pictograph. Students then worked individually to construct a bar graph on a template provided. Students worked in small groups to discuss their graphs. The teacher prompted ideas about what could be learned from a graph-for example, which room in the school has the most computers. The teacher had students write down, "The library has the most computers," and then asked them to work independently to add to the list of "What the Graph Tells Me." Students were then asked to predict how many computers would be in the new Grade 7 classroom next fall and to explain their answer.

## NOT YET WITHIN EXPECTATIONS

## Teacher's Observations

This student required one-to-one support from the teacher for all parts of the task. He was able to extract data from the graph with some prompting but was not able to make any generalizations. His prediction is a guess.

- has difficulty seeing the relevance or application of mathematics to everyday problems

|  | Not Yet | Meets | Fully | Exceeds |
| ---: | :--- | :--- | :--- | :--- |
| SNAPSHOT |  |  |  |  |
| CONCEPTS |  |  |  |  |
| STRATEGIES |  |  |  |  |
| ACCURACY |  |  |  |  |
| REPRESENTATION |  |  |  |  |

- has difficulty making predictions or evaluating the reasonableness of a result (estimate); may offer wild guesses
- shows little confidence in own knowledge or skill
- requires one-to-one support to follow modelled procedures and complete all parts of the task
- unable to explain or demonstrate how to complete most or all parts of the task



Hg-Eraph tettome...
F-Fe--lyforatty - hes- the--maxt commontetta-z- the- office hax tro - ompatert:

5-Minc-t-aroint- hat-twor computerie:-
4 Mte-Prote- heatano compenterti:
$\qquad$
$\qquad$ -

Pretend-- that--our-schoot has a-Grade--7-class:

How many computers do you think it would have-?

Why do you think that-?
-Workers the ste- zeventermpaters. -------------------------------------1
$\qquad$

## MEETS EXPECTATIONS (MINIMAL LEVEL)

## Teacher's Observations

This student required some prompting at various stages of the task. He was able to extract data from the graph but was not able to make any generalizations. His prediction is reasonable, but his reasoning is not based on the data.

- attempts to make sense of some simple mathematical situations; needs prompting and support for others
- show limited flexibility and perseverance; often needs support to continue with a challenging task
- generally able to follow procedures that are modelled one step at a time
- with prompting and support, can show or explain parts of simple processes and results experienced



Mor-Grapt--Haty-me-i.
The-- Pilinary-hax-the-mast-coormentero-:
 componteres:-

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-4.-- Mixx- f- enmeorilte-foos two-computera-:
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Pretend---that--our-schoot has a-Grade--7-ctass:

How-many computers do you think it would have-? ----2--

Why-do you-think-that-?
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## FULLY MEETS EXPECTATIONS

## Teacher's Observations

This student approached the task confidently and was able to do all parts of the task independently. He was able to make interpretations of the data (e.g., one class has more computers than the other). His prediction is reasonable and is based on a pattern he sees in part of the data (e.g., Grades $4 / 5$ and $5 / 6$ classrooms have two computers, so Grade 7 will have

|  | Not Yet | Meets | Fully | Exceeds |
| ---: | :--- | :--- | :--- | :--- |
| Snapshot |  |  |  |  |
| COncepts |  |  |  |  |
| Strategies |  |  |  |  |
| accuracy |  |  |  |  |
| Representation |  |  |  |  | two computers).

- tries to make sense of simple mathematical situations
- in familiar situations, makes predictions and evaluates the reasonableness of the answer or results (estimate) with minimal support, using recognition of pattern
- follows modelled procedures
- with some prompting, demonstrates and orally describes processes and results experienced



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Pretend--that--our-schoot has a--Grade--7-ctass:

How-many computers do-you think it would have-?

Why-do you-think-that-?

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## EXCEEDS EXPECTATIONS

## Teacher's Observations

This student approached all aspects of the task confidently and worked independently. She was able to make several interpretations from the data. Her prediction is reasonable and based on the data collected.

- independently applies mathematical concepts to everyday problems

|  | Not Yet | Meets | Fully | Exceeds |
| ---: | :--- | :--- | :--- | :--- |
| SNAPShot |  |  |  |  |
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| Strategies |  |  |  |  |
| accuracy |  |  |  |  |
| Representation |  |  |  |  |

- makes predictions and evaluates reasonableness of THE answer or results (estimate) using number sense and recognition of pattern
- follows modelled procedures
- demonstrates and describes orally, in detail, processes and results experienced; often uses own words



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Our school has only grades K to 6 . Imagine that we had a grade 7 classroom of students.
How many computers do you think that classroom would have? Why do you think that?



[^0]:    * You may want to list key curriculum concepts or skills for a particular task.

