MATH NOW

Grades 1 to 8 Resources approved by the Ontario Ministry of Education

Written by Canadian teachers and educators for Canadian students

What Math Now Offers

- Conceptual understanding combined with procedural fluency
- Connections to broader disciplines and everyday contexts
- Development of Social Emotional Learning (SEL) skills
- Coding support for teachers
- STEM integration
- Practise problems on key concepts
- Probing questions to initiate discussion, reveal misconceptions and reinforce understanding
- Problem solving opportunities with real-life contexts
- Applications of the mathematical modelling process
- Differentiated and ELL instruction strategies, including readiness indicators
- Assessment strategies and tools to evaluate and report students' achievement
- Videos and websites, recommended to enhance learning

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Why Math Now is Your Best Choice

Every lesson follows consistent organization:

- Prepare students cognitively for the main lesson task.
- Collaboratively solve problems that require applying the concepts and skills of the lesson.
- Consolidate ideas and understanding, and express mathematical thinking to peers.
- Students reflect on their learning and build confidence, proficiency and fluency in mathematics.

Discussion prompts that generate higher-order thinking are used to facilitate learning throughout the Resource.

Sample probing questions are purposefully prepared to engage students in meaningful discussions.

Practising Fundamentals questions are part of each lesson, with printable versions also included.

Teachers have access to all the materials across Grades 1 to 8. This eases teaching of combined grades and, with just a convenient click, teachers can refer to a lesson where a concept or skill was previously taught—no need for a whole new search or hunting through a textbook, or delaying students' getting the support they need to review or learn a concept.
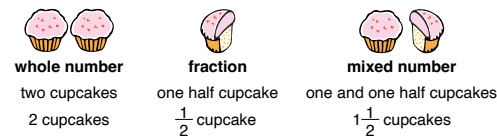
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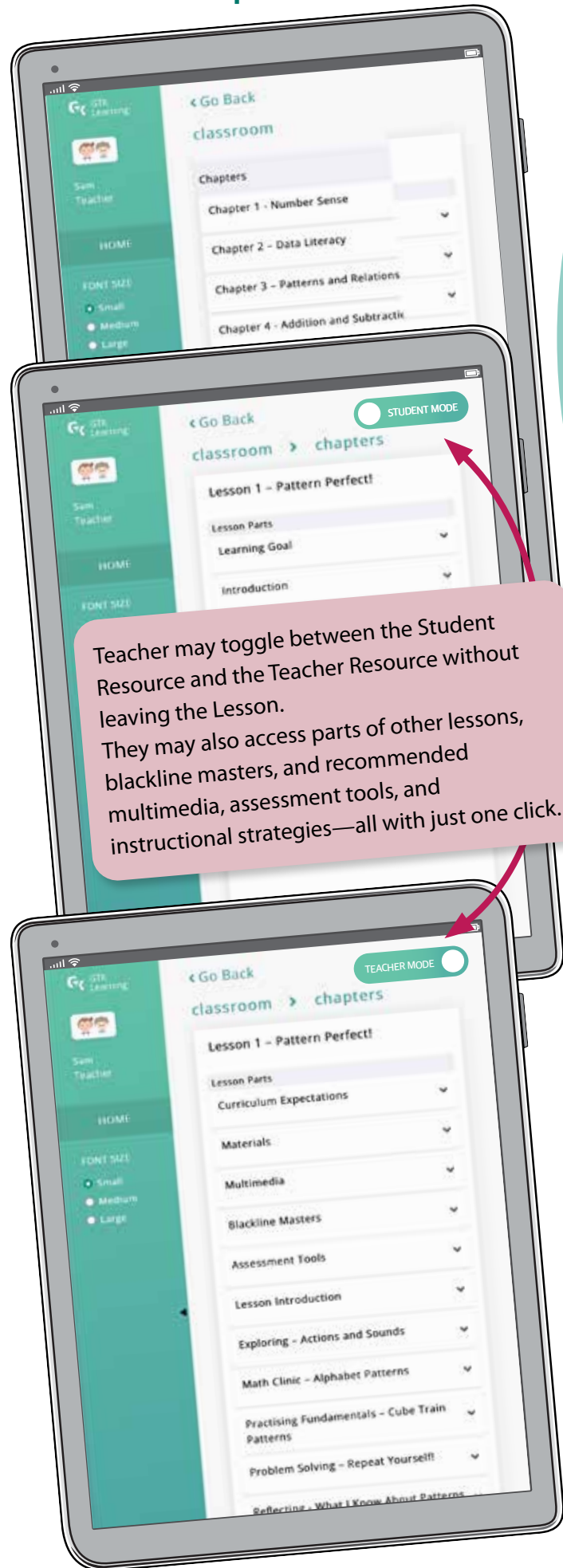
What the Lessons Contain

STUDENT MODE ⬤

TEACHER MODE ⬤

Exploring – Fair Sharing Real Objects (Grade 3)

Fair sharing means quantities are shared **equally**.

whole number
two cupcakes
2 cupcakes

fraction
one half cupcake
$\frac{1}{2}$ cupcake

mixed number
one and one half cupcakes
$1\frac{1}{2}$ cupcakes

- **Whole numbers** are any of the numbers you use for counting: 0, 1, 2, 3 and so on.
- **Fractions** are equal-sized parts of one whole thing.
- **Mixed numbers** are a combination of whole numbers (whole things) and fractions (parts of a whole thing).

Project the pictures of the cupcakes in the Student Resource to discuss and formally introduce to the terminology of whole number, fraction and mixed number. Review the meaning of fair sharing that students have explored in Grades 1 and 2, i.e., quantities that are shared equally. Emphasize to students how the whole numbers, fractions and mixed numbers under the cupcakes are written in two ways—with words and with symbols.

Math Clinic - Sampling Techniques (Grade 5)

Every item in the population of interest has an equal chance of being selected. Selection can be done by randomly picking the items, like drawing numbered slips out of a hat, or by organizing and numbering the items in the population and using technology to generate random numbers to select the items. A random sample does not favour one part of the population over another.
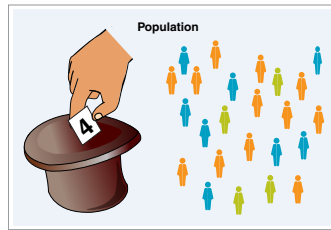
Population

Emphasize to students that sampling is an important part of a survey. Samples should be unbiased and representative of the population. Not having a reliable sample can create misleading, unsupported and biased results.

Have students read the descriptions of sampling techniques in the Student Resource. With a partner, they create their own visual representations to compare and contrast the various sampling techniques and demonstrate their understanding of each.

### Practising Fundamentals - Determining GCFs and LCMs (Grade 7)

3. A number has exactly eight factors, including itself and 1. Two of its factors are 22 and 55. What is the number? Show your work.

Answer: [The number is 110. Known factors: 1, 22, 55.
$22 = 2 \times 11$ therefore 2 and 11 are factors.
$55 = 5 \times 11$ therefore 5 is a factor. We already know 11 is a factor.
If 2 and 5 are factors, $2 \times 5 = 10$ is also a factor.
Therefore, the factors are 1, 2, 5, 10, 11, 22, 55, n.
The possible prime factors of n are: 2, 5, 11. Therefore, n = 110]

Problem Solving - Values in a Range (Grade 8)

Share with the class what you know about tax brackets and tax rates. How do you think they could affect financial plans?
Read the following table and represent tax brackets using inequalities.

Federal Tax Allocation
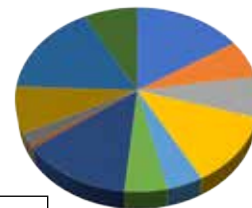
Sample Income Tax Brackets	Tax Rates
Less than $49 000	15%
$49 000 to less than $98 000	21%
$98 000 to le than $151 900	26%
$151 900 to less than $216 500	29%
More than $216 500	33%

Work in small groups. Use the above tax rates to create a mathematical model to determine the incremental tax payable by an individual with a specified income.

Review the meaning of income tax and introduce incremental tax as the portion of taxable income to which each tax rate applies. Using the example in the Student Resource,
- The 'first $49,000' of one's taxable income is taxed at 15%;
- Any remaining taxable income in the next tax bracket is taxed at 21% and so on.

Check that students record the correct inequalities for the ample income tax brackets.

[t < $49 000
$49 000 ≤ t < $98 000
$98 000 ≤ t < $151 900
$151 900 ≤ t < $216 500
T ≥ $216 500]

We determine the tax payable by subtracting the lower range limit of each tax bracket from the taxable income, for example, a person with a taxable income of $95 000 would pay income tax of $48 999 × 15% + ($95 000 − $49 000) × 21%.

Coding

Exploring – Debugging (Grade 6)

Work with your group and analyse and debug the code.

Use the method on CBLM 6.2: Debugging a Code poster to plan how you work.

Your teacher will show you the suggested code after you finish debugging. You can compare your findings with the suggested code.

Debugging a Code
Debugging Steps
1. Review the code.
2. Examine the code that generates the incorrect outcome and identify the error.
3. Fix the error in the script.
4. Test the code and check if the outcome is correct.
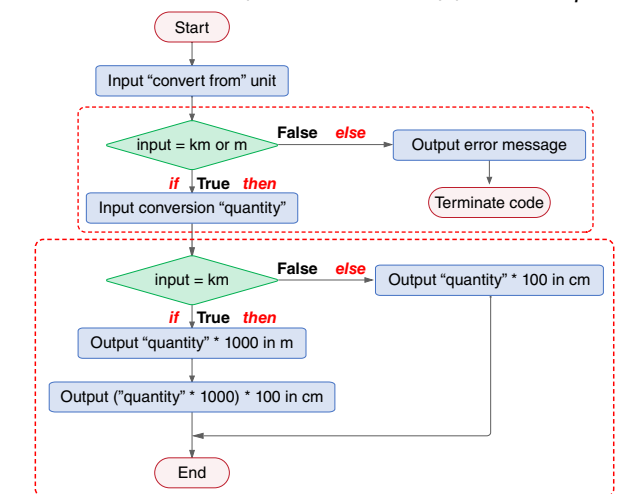5. Repeat the steps if there are still any errors.

Problem Solving – Converting Between Metric Units (Grade 5)

In this task, you will write code to convert larger metric units to smaller metric units.
- Use **km** and **m** for your input metric unit values.
- Reject incorrect input, return an error message and terminate the code.
- Output the converted quantities in the correct metric units.

Solution: Scratch Solution (Metric Conversion) (access link provided)

Start
Input "convert from" unit
input = km or m — False *else* → Output error message
if True *then*
Input conversion "quantity" — Terminate code
input = km — False *else* → Output "quantity" * 100 in cm
if True *then*
Output "quantity" * 1000 in m
Output ("quantity" * 1000) * 100 in cm
End

- Assessment Tools in each Teacher Resource lesson lists rubrics, checklists and peer assessments, which are used to document evidence of student achievement.
- The assessment opportunities are specific to the lesson. They align to the curriculum expectations for the lesson and the Learning Goal. Assessment summaries include related SELs (Social-Emotional Learning Skills).
- Rubrics cover the four categories of the achievement chart.
- Links are provided to PDFs of all Assessment Tools.
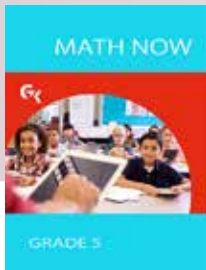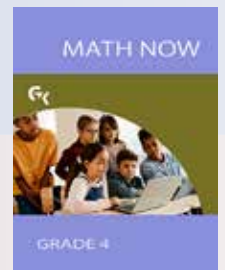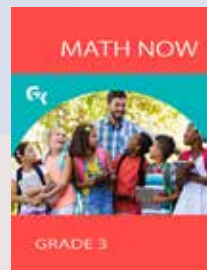
Assessment

MATH NOW *Editions*

Online Edition

(Teacher license includes Grades 1–8 teacher and student components. Students access the student component subscribed by their teachers for free.)

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