Mathematics Tasks | Grade 2

The tasks listed below support teaching and learning related to the learning outcomes from the 2022 Mathematics Curriculum for Grade 2. Multiple forms of representation (physical, visual, contextual, verbal, and symbolic) can be incorporated at any stage of the learning cycle to support students' conceptual understanding of mathematical concepts.

Many of these resources offer ideas for implementing the task, as well as suggestions for scaffolds and extensions. Some tasks are appropriate for multiple grades, especially with modifications. Therefore, teachers may wish to look at tasks in the grades above and below for more tasks.

<table>
<tr><th colspan="3">Number Organizing Idea: Quantity is measured with numbers that enable counting, labelling, comparing, and operating.</th></tr>
<tr><td colspan="3">Learning Outcome: Students analyze quantity to 1000.</td></tr>
<tr><td rowspan="3">Count & represent quantity</td><td colspan="2">The following Planning Guides were developed for the 2007 AB Mathematics Program of Studies (PoS). However, the planning process and many of the tasks and assessments still align with the 2022 AB Mathematics Curriculum. Please ensure that the Learning Outcome and Knowledge, Understanding, and Skills and Procedure statements are kept in mind as tasks are selected.
Place Value to 100: This Planning Guide was developed for Grade 2 in the 2007 PoS. It contains information and sample activities in Step 3 to explore place value to 100. Tasks could be used to address students' understanding of 2-digit place value before working with numbers to 1000.
Place Value to 1000: This Planning Guide was developed for Grade 3 in the 2007 PoS. It contains information and sample activities to explore counting and place value to 1000.</td></tr>
<tr><td>Array-bow of Colours
A 3-Act Task to explore estimating and counting 3-digit quantities.</td><td>Nice and Nasty
A partner or small group activity aimed at strengthening understanding of place value to the thousands place.

Note | Consider which scoring system and which challenges to use or exclude based on students' levels of readiness.</td></tr>
<tr><td>How Many Words?
An Estimation180 problem where students estimate the number of words in the "180".</td><td>Count Me In
An activity with opportunities for skip counting by various numbers.

Note | This task can be modified to count by 20s, 25s or 50s.</td></tr>
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<tr><td rowspan="3">Inequality</td><td colspan="2">The following Planning Guide was developed for the 2007 AB Mathematics Program of Studies (PoS). However, the planning process and many of the tasks and assessments still align with the 2022 AB Mathematics Curriculum. Please ensure that the Learning Outcome and Knowledge, Understanding, and Skills and Procedure statements are kept in mind as tasks are selected.
▪ Equality and Inequality: Information and tasks to explore the meaning of equality and inequality.</td></tr>
<tr><td>Are You Balanced?
An interactive task aimed at strengthening understanding of equality and inequality.</td><td>Equally Balancing Numbers
A 3-Act Math Task to explore equalities and inequalities using balance and pattern blocks.</td></tr>
<tr><td>Equivalent Pairs
This problem is designed to deepen children's understanding of equivalence and offers an opportunity to explore equivalent representations.</td><td>Interactive Balance
This interactive activity is ideal for exploring the concept of equivalence, and for introducing children to the way they can be recorded using mathematical symbols (< and >).</td></tr>
<tr><td rowspan="3">Odd and even</td><td>Same But Different
Select visual prompts to use in the routine Same But Different to explore odd and even numbers when partitioned into groups.</td><td>Numbers as Shapes
A visual way to explore odd and even numbers.

Note | Students can discuss how two is an even number but different from the others in this task.</td></tr>
<tr><td>Share the Love
A 3-Act task to explore sharing a quantity between two people with a remainder.</td><td>Share Bears
A problem to help students understand partitioning as the process of sharing. As the starting quantity is unknown, there are opportunities to explore patterns and even/odd numbers when partitioning into two equal sets.</td></tr>
<tr><td>Carroll Diagrams
An online interactive or paper task to sort numbers according to more than one attribute at a time. Students can use a Notice & Wonder routine to engage in discussion about the meaning of category headings and which cell to place each number.</td><td>Lots of Lollies
A challenging prompt to explore sharing and modelling odd and even quantities.</td></tr>
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<tr><td colspan="4">Number Organizing Idea: Quantity is measured with numbers that enable counting, labelling, comparing, and operating.</td></tr>
<tr><td colspan="4">Learning Outcome: Students investigate addition and subtraction within 100.</td></tr>
<tr><td rowspan="3">Number facts</td><td colspan="3">The following Planning Guide was developed for the 2007 AB Mathematics Program of Studies (PoS). However, the planning process and many of the tasks and assessments still align with the 2022 AB Mathematics Curriculum. Please ensure that the Learning Outcome and Knowledge, Understanding, and Skills and Procedure statements are kept in mind as tasks are selected.
▪ Adding and Subtracting Numbers to 100: Sample activities provided in Step 3.
▪ 2-Digit Mental Mathematics: Sample activities provided in Step 3.</td></tr>
<tr><td>Splat!
See the downloadable ppts for a “very powerful, highly interactive number sense strategy.</td><td>Window Sum
An Open Middle problem that uses the digits 0-9 to create four equations that have equal sums.
Note | Students can explore the associative property with the 3 addend equations.</td><td>Strike it Out for Two
This game offers an engaging context for practising addition and subtraction, but it also requires some strategic thinking.</td></tr>
<tr><td>Number Lines
Problems for students to explore once they are familiar counting with horizontal and vertical number lines.</td><td>Cuisenaire Counting
Use Cuisenaire rods to explore addition and subtraction using a length model.</td><td>Unsolved Problem
A Math Pickle challenge that provides students with lots of addition practice.
Note | Task does expand to adding two-digit numbers.</td></tr>
<tr><td rowspan="2">Two- and three-digit addition and subtraction</td><td>Cube Conversations
Similar to Splat!, animated picture prompts to spark rich math discourse as students share how they see and added the total number of cubes.</td><td>Subtraction Slip
This “error analysis” task connects to the counting back mental math strategy and uses a number line representation.
A video showing a student making a mistake that could be used to introduce a routine of Get the Goof!</td><td>Creative Math Prompt
Two missing digit subtraction equations to notice and wonder about while developing deeper understanding of place value and subtraction</td></tr>
<tr><td>Arranging Additions and Sorting Subtractions
A task to prompt flexible approaches as students’ consider calculation methods and the value of choosing a method that suits a certain question.
Note | Fluency Routines can be used in relation to this task.</td><td>Number Squares
A task that generates a never ending supply of calculations as the sums become the new addends.
A subtraction version is here.</td><td>Subtracting Reverses
A great opportunity for students to practice mental math strategies as they conjecture and look for counterexamples.
3-digit reversal questions are also available as a notice and wonder task.</td></tr>
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Number Organizing Idea: Quantity is measured with numbers that enable counting, labelling, comparing, and operating.			
Learning Outcome: Students interpret part-whole relationships using unit fractions.			
Unit fractions	Fair Feast A picture prompt to introduce fractions with the concept of one-half of a set and of an object in a familiar context.	Paper Halving How many ways can you halve a piece of paper? Students may fold/cut/draw to show halves and consider how to verify that the two halves are the same size. Note | This task provides the opportunity to revisit symmetry.	Fraction Talks A variety of images from the Math for Love website that can be used as prompts to identify examples of unit fractions. Students may be inspired to create their own prompts!
	Half Fraction Snake A rich Math Pickle challenge to explore fractions using only one-half as the starting prompt. Many opportunities to discuss what is the whole.	Making Longer, Making Shorter This activity provides question prompts for students to identify halves and quarters of a set. Students can explore simple multiplication and division without using the terms explicitly.	A Bowl of Fruit A challenging problem that requires a solid understanding of the relationship between part and whole. Students are challenged to work out how many apples there are in the fruit bowl if they know the fraction of apples.

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<tr><td colspan="4">Geometry Organizing Idea: Shapes are defined and related by geometric attributes</td></tr>
<tr><td colspan="4">Learning Outcome: Students analyze and explain geometric attributes of shape.</td></tr>
<tr><td>2-D and 3-D shapes</td><td colspan="3">The following Planning Guides were developed for the 2007 AB Mathematics Program of Studies (PoS). However, the planning process and many of the tasks and assessments still align with the 2022 AB Mathematics Curriculum. Please ensure that the Learning Outcome and Knowledge, Understanding, and Skills and Procedure statements are kept in mind as tasks are selected.
▪ 2D Shapes: Sample activities can be found in Step 3.
▪ 3D Shapes: Sample activities can be found in Step 3.</td></tr>
<tr><td rowspan="2">2-D and 3-D shapes</td><td>Shadow Play
Use visual reasoning to connect 2-D shadows to 3-D objects and foster flexibility of thinking to recognize there may be more than one solution to a problem.</td><td>Skeleton Shapes
This problem helps children begin to understand common geometric solid shapes, concentrating on edges and vertices.</td><td>A Chain of Eight Polyhedra
A challenging task to organize eight different 3D shapes so that each shape is next to another that shares at least one common face type.</td></tr>
<tr><td>Which One Doesn't Belong?
Picture prompts to use in mathematical discussions to foster use of appropriate mathematical vocabulary and reasoning as students justify their thinking.
Shape 1
Shape 2
Shape 53</td><td>Building with Cubes
An opportunity for students to develop spatial awareness and visualization skills to create a structure with 3-D shapes from verbal instructions.</td><td>More Building with Cubes

Note | Students could also be challenged to recreate structures after seeing them for only a few seconds as part of the High-Yield routine Quick Image.</td></tr>
<tr><td rowspan="2">Transformations</td><td>Transforming the Letters
Students can explore transformations using physical or cutout letters. They can discuss which transformations result in the letter looking different and keep track of the results.</td><td>Tangram Browser
An interactive to explore rotations and translations using tangrams and recreating images.

Note | Physical tangrams also allow students to explore reflections as well.</td><td>Tangram Tangle
A challenge to create new shapes from two pieces of a square. Students can engage in discussion to identify which are unique shapes, not just others rotated or reflected.</td></tr>
<tr><td>Reflector ! Rotcelfer
An activity for students to collaboratively explore reflections of composite 3D shapes.</td><td>Identify Transformations
A variety of images designed for fraction talks that could be used as "artwork" to identify the translation, rotation, or reflection of shapes.</td><td>Sponge Art
Identify rotations, reflections and transformations while creating artwork!</td></tr>
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Measurement Organizing Idea: Attributes such as length, area, volume, and angle are quantified by measurement.				
Learning Outcome: Students communicate length using units.				
Non-Standard units	Shark Bait A *3-Act Task* to estimate the length of a worm using snap cubes.	Little Man A task to explore relative size in a fictional context and estimate height using non-standard units.	Same But Different A visual prompt for the routine Same but Different for students to explore the effect of different sized non-standard units. Note | Use pencil and paper clips in first row.	Shrinking Toy Another *3-Act Task* to explore the changing height of a toy using snap cubes.

Patterns Organizing Idea: Awareness of patterns supports problem solving in various situations.				
Learning Outcome: Students explain and analyze patterns in a variety of contexts.				
Analyzing patterns	Repeating Patterns A task aimed at creating repeating patterns using triangles and other shapes. Note | There is a digital and paper version for this task, which can also be extended as needed for learning levels.	Poly Plug Pattern A task to construct and describe repeating patterns on a 25 by 25 grid of dots. Note | See Student Solutions section for examples.	Mystery Number A prompt to determine a pattern rule and a missing number or value to engage in mathematical discussion about possibilities.	1 Pattern = Many Patterns Picture prompts to replace elements to complete patterns. Note | Task can be extended by prompting students to add elements to the ends for more possibilities.

Time Organizing Idea: Duration is described and quantified by time.			
Learning Outcome: Students relate duration to time.			
Duration	Order, Order! And In Order Tasks to rank the "time" events in order of duration.	Matching Time A matching game to become familiar with the relationships between standard units of time.	How Long Does It Take? A matching game to help students become familiar with standard units of time and approximate duration of events or time periods.

Statistics Organizing Idea: The science of collecting, analyzing, visualizing, and interpreting data can inform understanding and decision making.			
Learning Outcome: Students relate data to a variety of representations.			
Represent data	Sticky Data This activity is a great introduction to graphing. It invites students to explore data in their own class from questions they generate. Pictographs or bar graphs could be created.	Dot Plots See an example of a dot plot. Click on the link to an interactive site where students can create dot plots and bar graphs using collected data from their own question(s).	Healthy Snack Day A task that engages students in generating questions, collecting first-hand data, and displaying data as they explore possible healthy snacks that can be brought to school by a class, grade or entire school.
	Class Names The questions require learners to interpret the data presented, as well as to re-present the data in different ways themselves. Note | A "block graph" is a bar graph.	The Pet Graph A problem to explore bar graphs and the importance of axes labels.	