# Mathematics Tasks | Grade 1

The tasks listed below support teaching and learning related to the learning outcomes from the 2022 Mathematics Curriculum for Grade 1. 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="4">Number Organizing Idea: Quantity is measured with numbers that enable counting, labelling, comparing, and operating.</th></tr>
<tr><td colspan="4">Learning Outcome: Students interpret and explain quantity to 100.</td></tr>
<tr><td>Count & represent quantity</td><td colspan="3">The following Planning Guide was developed for the 2007 Program of Studies. 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.<br>▪ Place Value to 100: This planning guide was developed for Grade 2 in the 2007 PoS and contains information and sample activities to explore place value to 100.</td></tr>
<tr><td rowspan="4">Count & represent quantity</td><td>Same but Different<br>Multiple images to use the "Alike and Different" routine to compare sets of numbers and explain reasoning. Additional images to explore on another website.<br><br>Note | Not all images align to the Grade 1 learning outcome.</td><td>The Candyman<br>A 3-Act Task with opportunities to notice and wonder while estimating and counting amounts less than 20.</td><td>How Would We Count?<br>A good catalyst to have students engage in discussion and see that there are multiple ways to visualize numbers and count.</td></tr>
<tr><td>Bright Idea<br>Another 3-Act Task that explores counting candies in groups of 20 (or 10) and 2s.</td><td>Making Sticks<br>A task that allows for flexible counting strategies and comparison of quantities as length.</td><td>The Pocket Game<br>A youcubed.org task to explore the concept of hierarchical inclusion, that larger numbers "include" smaller numbers.</td></tr>
<tr><td>The Pringle Ringle<br>A 3-Act Task to explore estimating and counting within 100.<br><br>Note | Manipulatives or visuals (e.g., hundreds chart) could be used to support students engaging with numbers in Act 2.</td><td rowspan="2">100 Square Jigsaw<br>This online interactive or printable task can be used to reinforce students' understanding of the sequences within a hundred chart or square.</td><td>Order Numbers<br>An Open Middle problem to order 2-digit numbers.</td></tr>
<tr><td></td><td>Open Number Line<br>Another Open Middle challenge to order numbers on an open number line and allow discussion about magnitude and position.</td></tr>
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| Number Organizing Idea: Quantity is measured with numbers that enable counting, labelling, comparing, and operating. | | | |
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| Learning Outcome: Students interpret and explain quantity to 100. | | | |
| Partition (share & group) | The Doorbell Rang<br>The story by Pat Hutchins can be used as a contextual introduction to partition a quantity. Students can explore the conservation of number as the number of cookies changes depending on the number of people.<br>Online video of the story | Share Bears<br>A problem to help students understand partition as the process of sharing. As the starting quantity is unknown, there are opportunities to explore patterns when dividing by two.<br>Note\| Students can explore additional concepts (e.g., even numbers, multiples of two) beyond the learning outcome expectations. | Birthday Sharing<br>Explore different meanings of partitioning or sharing through contextual word problems. See Teachers' Resources for information about different meanings of division. |
| Subitize | Dotty<br>A *3-Act Task* to explore patterns, counting, and subitizing. | Steve Wyborney's 100 subitizing slides<br>Opportunities to explore perceptual and conceptual subitizing. | Eightness of Eight<br>Watch a video that shows multiple arrangements of eight counters to explore subitizing, as well as conservation and composition of numbers. |
| Equality | Seesaw Shenanigans<br>An interactive seesaw to pictorially explore the concept of equality and inequality as balanced or not balanced.<br>Note \| To make the interactive work properly, watch for the seesaw to change color slightly. Then you will be able to place the animal and it will stay in place. | Moving Colours<br>An activity where students can explore equality with movement, participation and discussion. | Interactive Balance<br>This interactive activity is ideal for exploring the concept of equivalence, and for introducing children to the way this can be recorded mathematically using the equals sign, as well as offering a context in which to practice using inequality signs (< and >). |

<table>
<tr><td colspan="5">Number Organizing Idea: Quantity is measured with numbers that enable counting, labelling, comparing, and operating.</td></tr>
<tr><td colspan="5">Learning Outcome: Students examine addition and subtraction within 20.</td></tr>
<tr><td rowspan="3">Compose and decompose quantity</td><td colspan="4">The following Planning Guide was developed for the 2007 Program of Studies. 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.<br>▪ Basic Facts to 18: Step 3 includes sample activities.<br>▪ Addition and Subtraction Facts to 18: Step 3 includes sample activities.</td></tr>
<tr><td>Cuisenaire Counting<br>Use Cuisenaire rods to explore composing and decomposing quantities.</td><td>Humpty Dumpty<br>A 3-Act Task to explore subtraction through the number of broken eggs.</td><td>How Do You See It?<br>A variety of stories to engage students in exploration of addition and subtraction situations and consider different perspectives for the calculations.</td><td>Butterfly Flowers<br>A task to explore quantities between 10 and 20 as compositions of 10 and another quantity.</td></tr>
<tr><td>Splat!<br>See the downloadable ppts for a very powerful, highly interactive number sense strategy.</td><td>Cube Conversations<br>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>Mr. Wheelie<br>A task to explore the number of wheels on a combination of bicycles and tricycles.<br><br>Note | Log in to Alberta Assessment Consortium using CBE Microsoft credentials.</td><td>Same But Different<br>A variety of picture prompts to explore various concepts related to addition and subtraction.</td></tr>
<tr><td>Deliberate practice</td><td>Strike it Out for Two<br>This game offers an engaging context for practising addition and subtraction, but it also requires some strategic thinking.</td><td>Equality<br>An Open Middle task to balance an equation.<br><br>Similar Open Middle tasks:<br>Equality 2<br>Equality (multiple equal signs)<br>Make It Equal (multiple equal signs and addends)</td><td>Find the Difference<br>Opportunity to develop perseverance and logical reasoning while practicing subtraction using the numbers 1-6 in this challenging problem</td><td>What Could It Be?<br>An open-ended addition task as students make predictions, notice patterns and record results.</td></tr>
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| Number Organizing Idea: Quantity is measured with numbers that enable counting, labelling, comparing, and operating. | | | |
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| Learning Outcome: Students examine one-half as a part-whole relationship. | | | |
| One-half | Fair Feast<br>A picture prompt to identify one-half of a set and of an object in a familiar context. | Paper Halving<br>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.<br><br>Note \| This task provides the opportunity to revisit symmetry. | Fraction Talks<br>A variety of images from the Math for Love website that can be used as prompts to identify examples and non-examples of one-half. Students may be inspired to create their own prompts! |
| | Happy Halving<br>A visual challenge to split regular and irregular shapes in half. | Half Fraction Snake<br>A rich Math Pickle challenge to explore fractions using only one-half. Many opportunities to discuss what is the whole. | Halving<br>A challenging and rich task to explore verifying that two halves of one shape are the same size. |

| Geometry Organizing Idea: Shapes are defined and related by geometric attributes | | | |
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| Learning Outcome: Students interpret shape in two and three dimensions. | | | |
| The following Planning Guide was developed for the 2007 Program of Studies. 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.<br>▪ 2D/3D Shapes: Step 3 includes sample activities. | | | |
| 2-D Shapes | Sorting 2-D Shapes<br>An open-ended activity to sort 2-D shapes according to various (geometric and non-geometric) attributes. | Same But Different - Square<br>A picture prompt to compare 2-D shapes in different orientations.<br><br>Note \| Additional pictures available to compare various 2-D shapes. | Most Alike<br>Picture prompts on the site *Math Before Bed* to compare and contrast shapes as children hear and consider multiple perspectives.<br>Two of a Kind (2D shapes)<br>Similar Shapes (2D shapes)<br>Similar Shapes (3D shapes) |
| 3-D Shapes | Same but Different<br>A picture prompt to compare and describe 3-D shapes.<br><br>Additional images can be found here. | Building Shapes<br>An interactive team building activity to create (2-D) and 3-D shapes with a rope. | Describing Shapes<br>Students are challenged to complete sentences to describe the position of 2-D and 3-D objects. |
| Composite Shapes | Tangram Pictures<br>An introduction to tangram puzzles as a way to explore composite shapes.<br><br>Building with Solid Shapes<br>Opportunities to build composite shapes with 3-D shapes and develop vocabulary. | A World of Tan<br>A series of stories to connect more challenging tangram puzzles with online interactives available. | Composite Shapes<br>An *Open Middle* challenge to identify possible 2-D shapes used to create an image. |
| Symmetry | Desmos Lines of Symmetry<br>Online task to visualize lines of symmetry in a completed picture as well as from a picture that has been folded in half. | Colouring Triangles<br>A challenge to colour sections of a triangle to create a symmetrical pattern. | Making Math: Snowflakes<br>Challenge to make a snowflake with 6 lines of symmetry.<br><br>Note \| Task can be simplified by reducing number of lines of symmetry. |

| Measurement Organizing Idea: Attributes such as length, area, volume, and angle are quantified by measurement. | | | |
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| Learning Outcome: Students relate length to the understanding of size. | | | |
| | Ordering Shapes<br>An *Open Middl*e task to order regular 2-D shapes according to length. Task provides opportunity to explore how changing orientation of shapes does not change the length. | Sizing Them Up<br>An open-ended task for students to compare the size of irregular 2-D shapes. The task does not specify which attribute to measure (although Teacher Resources suggests area). | Little Man<br>A task to explore relative size in a fictional context and estimate height and capacity. |

| Patterns Organizing Idea: Awareness of patterns supports problem solving in various situations. | | | |
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| Learning Outcome: Students examine patterns in cycles. | | | |
| Repeating patterns | The following Planning Guide was developed for the 2007 Program of Studies. 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.<br>▪ Repeating Patterns Planning Guide: Step 3 includes sample activities to explore repeating patterns, including one looking at patterns in everyday life that can be identified as cycles (Activity #4). | | |
| | Sorting<br>Multiple y*oucubed* lessons to sort emojis, shapes and patterns by noticing similarities and differences.<br><br>Note \| Identifying attributes and sorting are foundational skills for identifying and creating patterns. | Repeating Patterns<br>This task offers students the "opportunity to recognize, make and describe repeating patterns of triangles, and then challenges them to create repeating patterns of their own." | Cube Bricks and Daisy Chains<br>Examples of repeating patterns to use in identifying and describing patterns. The questions in the problem could be used to introduce skip counting using the core of repeating patterns. |
| | Patterns in a Circle<br>Students explore repeating color patterns in a circle. | Biscuit Decorations<br>A challenging task that could be solved modelled with concrete materials to explore the pattern. Students can also be introduced to skip-counting and ordinal numbers. | 1 Pattern = Many Patterns<br>Picture prompts to engage students in mathematical discussions about how to replace unknown elements to complete patterns.<br>Note \| Students can add elements to extend the patterns for more possibilities to engage with task. |

| Time Organizing Idea: Duration is described and quantified by time. | | |
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| Learning Outcome: Students explain time in relation to cycles. | | |
| Cycles | Order the Changes<br>A task to order a set of pictures to show the life cycle of a frog and bean plant. | Calendar Sorting<br>A task to explore calendars and cycles by organizing the months without attached names. |

| Statistics Organizing Idea: The science of collecting, analyzing, visualizing, and interpreting data can inform understanding and decision making. | | | |
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| Learning Outcome: Students investigate and represent data. | | | |
| Investigating and representing data | Representing Data<br>Another Open Middle problem to create a graph that meets certain constraints.<br><br>Note \| This is a challenging problem that could be explored using concrete graphs. | Interpreting Graphs<br>An Open Middle problem that uses the digits 1-6 to fill in the blanks and make the statements about the graph true.<br><br>Note \| This is a challenging problem that could be explored using concrete graphs. | Ladybird Count<br>This task provides students with some data to explore and prompts for students to share their noticings and questions. |