Mathematics Tasks | Kindergarten

The tasks listed below support teaching and learning related to the learning outcomes in the Kindergarten Mathematics Curriculum. 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 in Grade 1 may also be appropriate and teachers may wish to look at these tasks as well.

<table>
<tr><th colspan="5">Number Organizing Idea: Quantity is measured with numbers that enable counting, labelling, comparing, and operating.</th></tr>
<tr><th colspan="5">Learning Outcome: Children interpret compositions of quantities within 10.</th></tr>
<tr><td rowspan="2">Interpret compositions of quantities within 10.</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.
▪ Numbers 1-10: Step 3 includes sample activities.</td></tr>
<tr><td>Snakes
Explore various ways to arrange 5 blocks. See Student Solutions for examples and Teachers' Resources for implementation tips.

Note | If students enjoy exploring different arranges of blocks, they may also like Tri-Five and Hexpentas.</td><td>Building Skyscrapers of Different Heights

A Math Pickle challenge to explore combinations for 10 as students build towers of all different heights using blocks.</td><td>King Kong Plays Bulgarian Solitaire
A rich and interesting way for children to as they visually explore the rearrangement of seven squares according to an algorithm.

Note | The task can be tried with different number of squares.</td><td>The Doorbell Rang
The story by Pat Hutchins can be used to explore the counting principle of conservation by sharing (partitioning) a quantity in a context of cookies.
Online video of the story

Note | The story uses the quantity of 12.</td></tr>
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<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: Children investigate quantity to 10.</td></tr>
<tr><td rowspan="2">Count and represent 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.
▪ Numbers 1-10: Step 3 includes sample activities.</td></tr>
<tr><td>The Candyman
A 3-Act Task with opportunities to notice and wonder while estimating and counting.</td><td>The Amazing Kindergarten Number Fair
A performance assessment task to represent quantity in a variety of ways.

Note | Log in to Alberta Assessment Consortium using CBE Microsoft credentials.</td><td>Game of Totals
A strategic two-person game to count or add the numbers 1, 2, or 3 to a total of 10, using visuals to see the quantities.</td><td>Ten Frame Challenge
An Open Middle task to explore ten frames.</td></tr>
<tr><td rowspan="2">Subitize and compare 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.
▪ Subitizing: Step 3 includes sample activities.</td></tr>
<tr><td>Same But Different
Numerous picture prompts to explore various representations of quantity using the routine Alike/Same and Different.</td><td>Peas in a Pod
A 3-Act Task with opportunities to notice and wonder while estimating, subitizing and counting. Act 3 provides opportunity to compare quantities.</td><td>Rainbow of Mess
A 3-Act Task to explore sorting and counting a collection of crayons and markers. Images in Act 3 provides the opportunity to count and compare different amounts.</td><td>Dotty Six
A strategic game that provides lots of opportunities to count and subitize quantities to 6.</td></tr>
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<tr><td colspan="3">Geometry Organizing Idea: Shapes are defined and related by geometric attributes.</td></tr>
<tr><td colspan="3">Learning Outcome: Children investigate shape.</td></tr>
<tr><td rowspan="3">2-D and 3-D shapes</td><td colspan="2">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.
▪ 2-D/3-D Shapes Planning Guide: Step 3 includes sample activities to sort and describe 2-D/3-D shapes, including identifying objects from clues given in a riddle.</td></tr>
<tr><td>Which One Doesn't Belong?
Multiple images that can be used to prompt discussions about attributes and sorting rules with students to develop reasoning skills.

Note | Select images that align with the kindergarten outcome.</td><td rowspan="2">Most Alike
Picture prompts on the site Math Before Bed to compare and contrast shapes as children hear and consider multiple perspectives.
Two of a Kind (2D shapes)
Similar Shapes (3D shapes)
Similar Shapes (2D shapes)</td></tr>
<tr><td>Shadow Play
A challenge for children to use visual reasoning to connect 2-D shadows to 3-D shapes.</td></tr>
<tr><td rowspan="2">3-D shapes</td><td>Building with Solid Shapes
Opportunities to build with 3-D shapes and explore qualitative attributes (e.g., round).</td><td>Skeleton Shapes
Build skeletons of a variety of 3D shapes and justify how they are the same as the original model. Additional challenge question to match number of straws and clay balls to 3-D shapes.</td></tr>
<tr><td>Same but Different
A picture prompt to compare and describe 3-D shapes.

Note | Additional pictures available to compare 2-D shapes.</td><td>Making Footprints
An activity to develop understanding of and language (every day and mathematical) for the faces of 3-D shapes.</td></tr>
<tr><td>2-D shapes</td><td>Data Shapes
Use pictures of shapes to sort data in more than one way. Question prompts that could be used to introduce a Venn diagram.</td><td>Chain of Changes
A task to look closely at the attributes of various 2-D shapes.</td></tr>
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<tr><td colspan="5">Measurement Organizing Idea: Attributes such as length, area, volume, and angle are quantified by measurement.</td></tr>
<tr><td colspan="5">Learning Outcome: Children explore size through direct comparison.</td></tr>
<tr><td rowspan="2">Exploring size through direct comparison</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.
▪ Attributes/Measurement</td></tr>
<tr><td>Animal's Sports Day
The idea of this problem is not to reach an "answer" or "solution" but to promote discussion and thinking about how animals move and an outcome if they did race, jump and swim. What attributes can be identified and compared as measurement?</td><td>Sizing Them Up
Pictures of shapes to arrange in order of size that provide opportunities to consider different attributes to identify and measure.</td><td>Bottles
This problem is useful to start considering capacity. It encourages discussion about how much liquid a bottle will hold.</td><td>Presents
Children can explore various attributes (weight, length, area, capacity) of wrapped presents.</td></tr>
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<tr><th colspan="4">Patterns Organizing Idea: Awareness of patterns supports problem solving in various situations.</th></tr>
<tr><td colspan="4">Learning Outcome: Children identify and create repeating patterns.</td></tr>
<tr><td rowspan="3">Repeating patterns</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.
▪ Repeating Patterns Planning Guide: Step 3 includes sample activities to explore repeating patterns, including one looking at patterns in Indigenous drum songs (Activity #4).</td></tr>
<tr><td>Sorting
Multiple youcubed lessons to sort emojis, shapes and patterns by noticing similarities and differences.

Note | Identifying attributes and sorting are foundational skills for identifying and creating patterns.</td><td>Cube Bricks and Daisy Chains
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.</td><td>Repeating Patterns
This NRICH maths 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.”</td></tr>
<tr><td>Patterns in a Circle
Students explore repeating colour patterns in a circle.</td><td>1 Pattern = Many Patterns
Challenging picture prompt to engage children in mathematical discussions about replacing elements to complete patterns.</td><td>Biscuit Decorations
A challenging task that could be solved modelled with concrete materials to explore the pattern.</td></tr>
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<tr><th colspan="3">Time Organizing Idea: Duration is described and quantified by time.</th></tr>
<tr><td colspan="3">Learning Outcome: Children interpret time as a sequence of events.</td></tr>
<tr><td>Interpret time as a sequence of events</td><td>Calendar Muddle
Prompts to reorder familiar timetable events and use vocabulary to describe sequence.</td><td>Times of Day
Picture prompts that can be used to sequence events.</td></tr>
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