

The Common Curriculum Framework

for

# K-12 MATHEMATICS

( 10-12 is under development )

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Western Canadian Protocol for Collaboration in Basic Education

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***KINDERGARTEN***

JUNE 1995

## VI. GENERAL OUTCOMES, AND SPECIFIC OUTCOMES WITH ILLUSTRATIVE EXAMPLES (K–9)

This section elaborates on the general outcomes and specific outcomes by providing illustrative examples, by grade, for the K–9 program. Note that the specific outcomes and illustrative examples for the Grade 10 to Grade 12 program will be developed at a later date.

### CODING FOR ILLUSTRATIVE EXAMPLES (IEs)

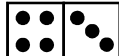
The illustrative examples (IEs) listed on the following pages are organized by grade and have been correlated to specific outcomes (SOs). The coding used recognizes that IEs relating to more than one SO are listed before those relating to only one SO. Examples of the coding system are listed below.

|                   |  |
|-------------------|--|
| 1–4               | Means that the IE relates to specific outcomes one through four in the subsection being addressed.                             |
| 1, 3              | Means that the IE relates to specific outcomes one and three in the subsection being addressed.                                |
| 1, 3.1<br>1, 3.2  | Means that the IEs relate to specific outcomes one and three in the subsection being addressed and that there are two of them. |
| 6.1               | Means that the IE relates to specific outcome six in the subsection being addressed.   |
| 4.1<br>4.2<br>4.3 | Means that the IEs relate to specific outcome four in the subsection being addressed and that there are three of them.         |

**KINDERGARTEN**  
**Strand: Number (Number Concepts)**

*Students will:*

- use numbers to describe quantities
- represent numbers in multiple ways.

| General Outcome  | Specific Outcomes  | Illustrative Examples  |
|--|--|--|
| <p>Describe, orally, and compare quantities from 0 to 10, using number words in daily experiences.</p> | <p>1. Count the number of objects in a set (0 to 10). [CN, V]</p> <p>2. Build and compare sets of objects and describe the relationships among them, using the terms; more than, greater than, fewer than, less than, the same as and equal to (no written symbols). [C]</p> <p>3. Order up to 2 sets of like objects based on the number of objects in each set. [PS]</p> | <p>1–2 Turn over two dominoes. How many dots in all on this domino? And this one? How many dominoes can you find with five dots? How many dominoes have the same number of dots as this one?</p>  <p>1–4 Set out a red plate, a blue plate and a green plate. Take a large handful of tiles, and place them on the desk. Count out seven tiles and put them on the red plate. Count out five tiles for the blue plate. Does the red plate have more tiles or does the blue plate have more? Tell me how you know this. Now count out two tiles for the green plate. Does the blue plate have fewer tiles than the green plate? Why or why not? Use the calculator to show the number of tiles on the red plate. . . . the blue plate. Put the red and blue plates in order from the least tiles to the most tiles.</p> <p>1.1 Count the fingers on one hand.<br/> 1.2 How many ears on three people?<br/> 1.3 Take six books off the shelf.<br/> 1.4 Count the number of brushes on the chalkboard ledge.<br/> 1.5 Put eight plates around the table.</p> <p>2.1 Put out the same number of spoons as plates. How do you know you have an equal number of spoons and plates?</p> <p>3.1 Spill a tub of unequal amounts of red and blue cubes. Sort the cubes by colour. How many cubes of each colour are there? Arrange the sets of cubes in order from least to greatest.</p> |

**KINDERGARTEN**  
**Strand: Number (Number Concepts)**

*Students will:*

- use numbers to describe quantities
- represent numbers in multiple ways.

| General Outcome   | Specific Outcomes  | Illustrative Examples  |
|---|--|--|
| Describe, orally, and compare quantities from 0 to 10, using number words in daily experiences. | 4. Explore the representation of single-digit numerals, using a calculator or a computer to represent numerals on a screen. [PS, R, T] | 4.1 Use the calculator to show me the number that matches: <ul style="list-style-type: none"> <li>– how old you are</li> <li>– how many thumbs you have</li> <li>– the number of people in your home.</li> </ul> |

**KINDERGARTEN**  
**Strand: Number (Number Operations)**

*Students will:*

- demonstrate an understanding of and proficiency with calculations
- decide which arithmetic operation or operations can be used to solve a problem and then solve the problem.

| General Outcome                                    | Specific Outcomes  | Illustrative Examples  |
|--|--|--|
| Demonstrate awareness of addition and subtraction. | 5. Represent the processes of addition and subtraction through role playing and the use of manipulatives. [C, CN, PS, V] | 5.1 If two students are at the sand table and one more student comes over, how many students are at the sand table?<br>5.2 If two students are at the sand table, how many more students can join them, if six students can play?<br>5.3 Five students were building a fort. Two students left to have a snack. How many students are left at the fort?<br>5.4 Use your storyboard and counters to show this story. Three ducks are swimming on the pond. Four ducks are waddling on the sand. Tell me how many ducks in all. Two ducks fly away. How many ducks are left?<br>Make up your own story for your storyboard and counters. |

**KINDERGARTEN****Strand: Patterns and Relations (Patterns)***Students will:*

- use patterns to describe the world and to solve problems.

| <b>General Outcome</b>  | <b>Specific Outcomes</b>  | <b>Illustrative Examples</b>  |   |   |   |   |   |   |
|---|---|---|---|---|---|---|---|---|
| <p>Identify and create patterns arising from daily experiences.</p> | <p>1. Sort objects, using a single attribute. [CN, R, V]</p> <p>2. Recognize and reproduce a pattern, using actions and manipulatives. [C, CN, PS, V]</p> | <p>1, 3–4<br/>Take a scoop of teddy bear counters (three sizes and three colours). Sort the bears. Use teddy bears from each group to make a pattern. Describe your pattern. Now use the coloured tiles to make a pattern sidewalk for the bears to sit on. Describe your pattern.</p> <p>1.1 Take a scoop full of pattern blocks.<br/>– Sort out the red blocks.<br/>– Push the blocks back together. Sort out the blocks that are triangles.<br/>– Make up your own sorting rule. Sort the blocks by your rule.</p> <p>1.2 Here are the large, thick attribute blocks.<br/>– Make a set of blue blocks. How many blocks are blue?<br/>– Push the blocks back together. Sort out the blocks that are shaped like circles. How many circles are there?<br/>– Push the blocks back together. Use your own rule to sort the blocks.</p> <p>2–4 Listen, and watch what I do.<br/>clap, slap, clap, slap, clap, slap</p> <p>– Copy what I did.<br/>– I have started a cube pattern. Does it match the clap, slap pattern?</p> <table border="1" data-bbox="1257 1174 1642 1222"> <tr> <td>R</td> <td>G</td> <td>R</td> <td>G</td> <td>R</td> <td>G</td> </tr> </table> <p>– Use more cubes to continue the pattern to the edge of the desk.<br/>– What is another way to describe the cube pattern?</p> | R | G | R | G | R | G |
| R   | G   | R   | G | R | G |   |   |   |

**KINDERGARTEN****Strand: Patterns and Relations (Patterns)***Students will:*

- use patterns to describe the world and to solve problems.

| <b>General Outcome</b>                                       | <b>Specific Outcomes</b>   | <b>Illustrative Examples</b>  |
|--|--|---|
| Identify and create patterns arising from daily experiences. | <p>3. Extend and create a pattern, using actions and manipulatives. [C, CN, PS, R, V]</p> <p>4. Describe, orally, a pattern. [C, CN]</p> | <p>3.1 Watch what I do.<br/>stamp, stamp, clap, stamp, stamp, clap, stamp, stamp, clap, . . .</p> <p>– Choose your favourite collection of counters. Build a pattern to match what I did.<br/>– What other actions could you do to match my pattern? Act out your action pattern.</p> <p>4.1 Describe each of the patterns. Can you think of more than one way? What comes next in each of the patterns?<br/>tick, tock, tick, tock, tick, tock, . . .</p> <div data-bbox="1344 722 1975 1006"><p>The image shows two rows of patterns. The top row consists of three groups of three shapes: a triangle, a square, and a pentagon. The first group is triangle, square, pentagon; the second is pentagon, square, triangle; and the third is triangle, square, pentagon. The bottom row consists of three groups of three objects: a book, a pencil, and a pencil. The first group is book, pencil, pencil; the second is pencil, pencil, book; and the third is book, pencil, pencil.</p></div> |

**KINDERGARTEN****Strand: Shape and Space (Measurement)***Students will:*

- describe and compare everyday phenomena, using either direct or indirect measurement.

| <b>General Outcome</b>                       | <b>Specific Outcomes</b>  | <b>Illustrative Examples</b>  |
|--|---|---|
| <p>Demonstrate awareness of measurement.</p> | <ol style="list-style-type: none"> <li>1. Classify and describe linear attributes of objects; e.g., long, short. [C]</li> <li>2. Arrange objects in order of size, by length or by height. [E, PS]</li> <li>3. Cover a surface with a variety of objects. [PS, V]</li> <li>4. Use the words full, empty, less and more, to talk about volume and capacity. [C]</li> </ol> | <p>1–2 Put these pencils in order from shortest to longest. How do you know this one is longest?<br/>Can you find a pencil that is longer than this one but shorter than that one? Explain.</p> <p>2.1 Use unifix cubes to make trains that are longer or shorter than a given train.</p> <p>2.2 Which teddy bear is tallest? Which bear is shortest? Put the three bears in order from shortest to tallest.</p> <p>3.1 Cover your book with coloured tiles. Try not to overlap the tiles or leave any holes in your covering. How many tiles are used?</p> <p>3.2 Trace around your hand and cut out the tracing. Working with a partner, estimate how many hands would cover your desk; the teacher's desk; the door. Check each one to find out.</p> <p>4.1 Fill the pink cup with water. Is the pink cup empty or full? Spill some water from the pink cup. Does it have more or less water now?<br/>Put some water in the clear cup. Which has more water—the pink cup or the clear cup?</p> <p>4.2 Put more sand in your plastic cup than I have in mine.</p> |

**KINDERGARTEN****Strand: Shape and Space (Measurement)***Students will:*

- describe and compare everyday phenomena, using either direct or indirect measurement.

| <b>General Outcome</b>                       | <b>Specific Outcomes</b>  | <b>Illustrative Examples</b>  |
|--|---|---|
| <p>Demonstrate awareness of measurement.</p> | <p>5. Use the words heavier or lighter, to talk about the mass (weight) of two objects. [C]</p> <p>6. Use the terms long time or short time, to talk about the duration of events. [C]</p> <p>7. Use words like hot, hotter; cold, colder; warm, warmer; cool, cooler to talk about temperature. [C]</p> <p>8. Exchange play money for objects in a play store. [E, PS]</p> | <p>5.1 Lift and compare pairs of objects. Which object is lighter? Which is heavier?<br/>How can you check your thinking?<br/>Was your decision correct?</p> <p>6.1 Have a race to determine which event takes more time:<br/>– tying shoes with laces or doing them up with some other type of fastener<br/>– zipping up a jacket or buttoning it.</p> <p>7.1 Which bowl of water is colder?</p> <p>7.2 After skipping, is Robert’s forehead warmer than Kristie’s forehead?</p> <p>8.1 How much does this sticker cost?<br/>Do you have enough pennies to buy one sticker?<br/>How do you know?</p> |

**KINDERGARTEN****Strand: Shape and Space (3-D Objects and 2-D Shapes)***Students will:*

- describe the characteristics of 3-D objects and 2-D shapes, and analyze the relationships among them.

| <b>General Outcome</b>                       | <b>Specific Outcomes</b>   | <b>Illustrative Examples</b>  |
|--|--|---|
| Sort, classify and build real-world objects. | 9. Identify, sort and classify 3-D objects in the environment. [CN, R]<br><br>10. Describe, and discuss orally, objects, using such words as big, little, round, like a box, like a can. [C]<br><br>11. Build 3-D objects. [PS, V] | 9.1 Given a group of objects (cans, cones, balls, glasses, etc.), sort and classify them. Explain your classification. Experiment to discover which objects will roll.<br><br>9.2 Choose one 3-D object. Where do you see this shape of object in our classroom? Our school? Our community?<br><br>10.1 Reach into the bag and see if you can find the can/cylinder. How did you know you had found the can/cylinder?<br><br>Reach in. Hold an object. Describe your object.<br><br>11.1 Choose a 3-D object. What is your object called? Make your object, using molding clay, play dough or blocks. |

**KINDERGARTEN****Strand: Shape and Space (Transformations)***Students will:*

- perform, analyze and create transformations.








































| <b>General Outcome</b>                         | <b>Specific Outcomes</b>  | <b>Illustrative Examples</b>   |
|--|---|--|
| Describe, orally, the position of 3-D objects. | 12. Describe the relative position of 3-D objects, using such words as over, under, beside, between, inside, outside. [C] | 12.1 Simon says: . . . “put the longest pencil between the pen and the ruler.”<br>“. . . stand outside our circle but beside my desk.”<br>“. . . walk between the outlines of the square and the triangle.”<br><br>12.2 Place the book under the chair. Set the box inside the circle.<br><br>12.3 Look at the cereal box in our play store. Tell me where to look for it. |

**KINDERGARTEN**

**Strand: Statistics and Probability (Data Analysis)**

*Students will:*

- collect, display and analyze data to make predictions about a population.

| General Outcome   | Specific Outcomes   | Illustrative Examples   |   |   |   |   |   |   |   |   |   |   |   |   |   |  |  |  |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|--|--|--|
| <p>Collect and organize, with assistance, data based on first-hand information.</p>   | <p>1. Collect, with assistance, first-hand information. [C, PS]</p> <p>2. Construct, with assistance, a concrete/object graph, using one-to-one correspondence. [PS, V]</p> <p>3. Compare data in two categories, using such words as more, less, the same. [C, CN]</p> | <p>1-3.1<br/>Do Kindergarten children like french fries better than potato chips?<br/>– How can we find out the answer for our class?<br/>– How should we collect and write the class answer?<br/>– How could we show what we learned, using the graphing mat?<br/>– Does the graph show us that Kindergarten children like french fries or potato chips better? How?</p> <p>1-3.2<br/>Do you think most children like red best?<br/>Here is a pictolist of our class. You can visit each child and see if red is or is not his or her favourite colour. Remember to write down (or check) what each person tells you, (yes or no). Now use your red blocks and your white blocks, to show how many do and do not like red best. Do more children like red best? How do you know?</p> <p>1-3.3<br/>Bring your favourite bedtime buddy to school. Look at your classmates’ buddies and talk about the differences. Is there more than one type? One colour? Size? How could we find out if there are more of one type than another? Sort buddies according to teddy bears and other animals. Does one group have more/less? How many more/less? Organize the buddies into a 2-column real graph to show how easily we can now see how many more/less. What happens if we graph our buddies by colour? Size? Re-graph and discuss results.</p> <p>2.1 Sort the toys into two groups—those with wheels, and those with no wheels. Place all the toys with wheels on one bar of the graphing mat. Place all the toys in the other group on the second bar of the graphing mat. Can you tell which group has more? How?</p> <p>3.1 Tell me what the pictolist shows. How do you know?</p> <p style="text-align: center;">Who likes swimming?</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table> |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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|  |    |    |  |  |   |   |   |   |   |   |   |   |   |   |   |  |  |  |