

The Common Curriculum Framework

for

K-12 MATHEMATICS

(10-12 is under development)

Western Canadian Protocol for Collaboration in Basic Education

GRADE 3

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 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 4.2 4.3	Means that the IEs relate to specific outcome four in the subsection being addressed and that there are three of them.

Grade 3
Strand: Number (Number Concepts)

Students will:

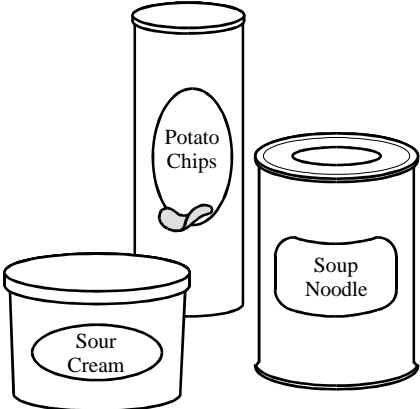
- use numbers to describe quantities
- represent numbers in multiple ways.

General Outcome	Specific Outcomes	Illustrative Examples
<p>Develop a number sense for whole numbers 0 to 1000, and explore fractions (fifths and tenths).</p>	<ol style="list-style-type: none"> Count by 2s, 5s, 10s and 100s to 1000, using random starting points. [CN] Count by 25s to 1000, using starting points that are multiples of 25. [C, CN] Estimate, then count the number of objects in a set (0 to 1000), and compare the estimate with the actual number. [C, E] Skip count backward by 2s, 5s, 10s and 100s, using starting points that are multiples of 2, 5, 10 and 100 respectively. [C, CN, T] 	<ol style="list-style-type: none"> Start at 91 and count by 2s. Stop when you say a number greater than 120. Begin counting from 267 by fives. Stop after ten counts. What pattern helps you skip-count accurately? Predict the number you will say after ten more skip-counts. Test your prediction. Travis has a five dollar bill and eleven quarters. He starts at 500 and skip-counts by 25s to find the total value of his money. What numbers will he say as he counts? What is his total? Estimate the number of dots in the diagram. How did you get your estimate? <div style="text-align: center; margin: 10px 0;">  </div> <p>Count the dots. Was your estimate close?</p> Estimate the number of beans in the jar. Write down your estimate. Count the beans, using a place value mat to display tens and ones. Record your number. Mark programmed the calculator to skip-count backward from 125 by 5s. Predict the first ten numbers he will see in the display. Will he ever see zero in the display? Explain.

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<p>Develop a number sense for whole numbers 0 to 1000, and explore fractions (fifths and tenths).</p>	<p>5. Demonstrate, concretely and pictorially, place value concepts to give meaning to numbers up to 1000. [C, R, V]</p>	<p>5-6.1 Brenda is using any five pieces, other than the large cube from a base-10 set, to build numbers. Her results are recorded in the chart below. Has she found all the possible numbers?</p> <table border="1" data-bbox="1225 521 1628 695"> <thead> <tr> <th>H</th> <th>T</th> <th>O</th> <th>Number</th> </tr> </thead> <tbody> <tr> <td></td> <td>5</td> <td></td> <td>50</td> </tr> <tr> <td></td> <td></td> <td>5</td> <td>5</td> </tr> <tr> <td></td> <td>3</td> <td>2</td> <td>32</td> </tr> <tr> <td></td> <td>1</td> <td>4</td> <td>14</td> </tr> </tbody> </table> <p>Show how you would use any five pieces to make all possible numbers. Record your results. List the numbers from greatest to least.</p> <p>5-6.2 Find three containers similar to the ones shown. Predict which container holds the most. The least.</p>  <p>Estimate the number of centicubes needed to fill each container to the top edge. Record your numbers. Fill each, and count the totals. Rebuild each total with the fewest possible base-10 blocks. Were your estimates about right? Did you correctly predict which container would hold the most? The least? What other method might be used to compare the capacity of the three containers?</p>	H	T	O	Number		5		50			5	5		3	2	32		1	4	14
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<p>Develop a number sense for whole numbers 0 to 1000, and explore fractions (fifths and tenths).</p>	<p>6. Recognize, build, compare and order sets that contain 0 to 1000 elements. [PS, R, V]</p> <p>7. Round numbers to the nearest hundred. [E]</p> <p>8. Read and write numerals to 1000. [C, CN, V]</p> <p>9. Read and write number words to 100. [C, CN, V]</p>	<p>5–6.3 Use base-10 blocks. Find several ways to show the number 257. Record each way you find with pictures. Complete the table for each way you find. Discuss how to build the number with the least amount of pieces.</p> <table border="1" data-bbox="1303 548 1663 776"> <thead> <tr> <th>H</th> <th>T</th> <th>O</th> </tr> </thead> <tbody> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> </tbody> </table> <p>7.1 At Marg’s school there are 276 students. How many packages of 100 jellybeans must be purchased so each student has one jellybean?</p> <p>8–9 Here is a list of the top speeds animals can move over short distances. Rewrite each, changing numerals into number words, and number words into numerals.</p> <p>Dolphin: fifty km per hour Elephant: 42 km per hour Dragonfly: fifty-nine km per hour Human: 46 km per hour Wild turkey: ninety-two km per hour.</p> <p>Which animals can move about forty km per hour over short distances? About fifty km per hour? Name three animals you think you can outrun.</p>	H	T	O												
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<p>Develop a number sense for whole numbers 0 to 1000, and explore fractions (fifths and tenths).</p>	<p>10. Use ordinal numbers to 100. [C]</p> <p>11. Represent and describe numbers to 1000 in a variety of ways. [C, PS, R, T, V]</p> <p>12. Recognize and explain if a number is divisible by 2, 5 or 10. [C, CN, R]</p> <p>13. Illustrate and explain fifths and tenths as part of a region or a set. [C, R, V]</p>	<p>10.1 Which is greatest: the 40th even number, the 10th number that ends in five, or the 20th number with at least one 2 in it. Orally explain your decision.</p> <p>11.1 One way to make 90 is $45 + 45$. Make 90 four other ways.</p> <p>11.2 Marbles are sold in packages of 101, 41 or 34. If 900 are required for an experiment, which packages do you need to buy so you have the fewest left over?</p> <p>11.3 Show 333, in several ways, on your calculator, without using the 3 key.</p> <p>12.1 Briana used a hundred chart to show which numbers can be divided into equal parts. Use a hundred chart to show the following:</p> <ul style="list-style-type: none"> – numbers that can be divided into ten equal parts – numbers that can be divided into five equal parts – numbers that can be divided into two equal parts but not five equal parts – numbers that can be divided into 2, 5 and 10 equal parts. <p>13.1 Look at the name below:</p> <p style="text-align: center;">JASON BLACKBERRY</p> <p>What fraction of the letters in the first name are vowels? Use grid paper to outline a rectangle that can be used to show the fraction of letters in the first name that are not vowels. Name the fraction and, using green, colour the part of the grid that shows the fraction. Repeat the activities for the last name. Do most names have a greater fraction of consonants than vowels? Report the findings of your investigation in your journal.</p>

Grade 3

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																
<p>Apply an arithmetic operation (addition, subtraction, multiplication or division) on whole numbers, and illustrate its use in creating and solving problems.</p>	<p>14. Use manipulatives, diagrams and symbols, in a problem-solving context, to demonstrate and describe the processes of addition and subtraction to 1000, with and without regrouping. [C, PS, R, V]</p>	<p>14.1 Paul and Gilbert are using a pair of dice and same base-10 blocks to play “Race to 1000”. What is the number represented by the blocks on each boy’s gameboard?</p> <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p>Paul</p> <table border="1" style="margin: auto;"> <thead> <tr> <th>TH</th> <th>H</th> <th>T</th> <th>O</th> </tr> </thead> <tbody> <tr> <td></td> <td>□ □ □ □</td> <td>— —</td> <td>• • • • • • •</td> </tr> </tbody> </table> </div> <div style="text-align: center;"> <p>Gilbert</p> <table border="1" style="margin: auto;"> <thead> <tr> <th>TH</th> <th>H</th> <th>T</th> <th>O</th> </tr> </thead> <tbody> <tr> <td></td> <td>□ □</td> <td>==== ==== ==== ====</td> <td>• • • • • • • • •</td> </tr> </tbody> </table> </div> </div> <p>The boys must show each new total, using the fewest blocks possible. Explain what each boy will do on his next turn.</p> <ul style="list-style-type: none"> – Paul rolls 4 tens (1st die) and 6 ones (2nd die) – Gilbert rolls 6 tens and 3 ones <p>Use numbers to record what happens on each boy’s turn.</p> <p>14.2 Gabriella wrote in her journal.</p> <p style="text-align: center;">581 – 249</p> <p>“To subtract 249 from 581, I add one to both numbers. Then the problem is easy to solve.”</p> <p>Use base-10 blocks to explain Gabriella’s subtraction method. What is the answer?</p> <p>What would Gabriella do with this question?</p> <p style="text-align: center;">235 – 96</p> <p>Show how you might use numbers and symbols to record your thinking.</p>	TH	H	T	O		□ □ □ □	— —	• • • • • • •	TH	H	T	O		□ □	==== ==== ==== ====	• • • • • • • • •
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<p>Apply an arithmetic operation (addition, subtraction, multiplication or division) on whole numbers, and illustrate its use in creating and solving problems.</p>	<p>15. Use manipulatives, diagrams and symbols with maximum products and dividends to 50, to demonstrate and describe the processes of multiplication and division. [C, PS, V]</p>	<p>14.3 Solve these story problems. Daniel’s family took a car trip. The first day they travelled 325 kilometres. The next day they drove 25 kilometres more than the first day. How many kilometres did they travel altogether in two days?</p> <p>By the end of the third day, they had travelled 915 kilometres. How far did they travel on the third day?</p> <p>Daniel’s father said the trip home would be seven hundred ninety kilometres, if they took a shortcut. How many kilometres can be avoided by taking the shortcut home?</p> <p>14.4 Use the numbers 1 through 9, once only, to make a correct addition statement. Is there more than one solution?</p> $\begin{array}{r} A \ B \ C \\ + \ D \ E \ F \\ \hline G \ H \ J \end{array}$ <p>14.5 In the story, <i>One Watermelon Seed</i>, Max and Josephine plant seeds in their garden: one watermelon; two pumpkins; three eggplants; four peppers; five tomatoes; six blueberries, seven strawberries; eight beans; nine potatoes, and ten corn. What could you do to find how many seeds in all were planted? Carry out your plan. What did you find? In the fall, Max and Josephine picked 10 watermelons, 20 pumpkins and 30 eggplants. The pattern continues. How many corn did they pick? What could you do to find how many fruits and vegetables they picked in all? Carry out your plan. What did you find?</p> <p>15.1 Draw a picture to show how thirty-three cookies can be shared equally by six children.</p> <p>15.2 Mom bought three packages of muffins. Each package held one dozen muffins. She repacked the muffins before freezing them. Each freezer bag held three muffins. How many freezer bags did Mom use?</p> <p>Act out this story problem with counters. Write a number sentence to match this story. Make up your own two-step problem. Draw a picture to show the story and its solution.</p> <p>15.3 Your younger brother is learning about operations with numbers. He doesn’t understand what $5 \times 3 = 15$ represents. How would you explain this to him? (You may use pictures or graphs.)</p>

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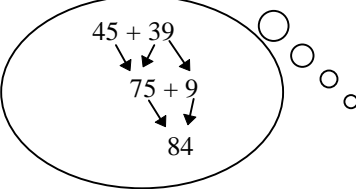
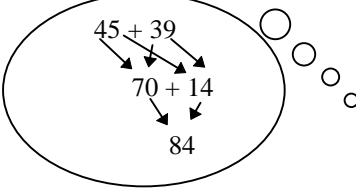
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<p>Apply an arithmetic operation (addition, subtraction, multiplication or division) on whole numbers, and illustrate its use in creating and solving problems.</p> <p>Use and justify an appropriate calculation strategy or technology to solve problems.</p>	<p>16. Recall addition/subtraction facts to 18 and multiplication facts to 49 (7×7 on a multiplication grid). [E]</p> <p>17. Verify solutions to addition and subtraction problems, using estimation and calculators. [E, PS, T]</p> <p>18. Verify solutions to addition and subtraction problems, using the inverse operation. [PS, R]</p>	<p>16.1 Use the following grids to do addition and multiplication.</p> <table style="display: inline-table; margin-right: 20px;"> <tr><td>+</td><td>0</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td></tr> <tr><td>0</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>1</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>2</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>3</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>4</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>5</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>6</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>7</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>8</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>9</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> </table> <table style="display: inline-table;"> <tr><td>X</td><td>0</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td></tr> <tr><td>0</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>1</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>2</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>3</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>4</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>5</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>6</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>7</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> </table> <p>17.1 How would you use estimation to decide if John’s calculation is likely correct?</p> <table style="margin-left: 40px;"> <tr><td>247</td><td>607</td></tr> <tr><td><u>+192</u></td><td><u>-288</u></td></tr> <tr><td>339</td><td>481</td></tr> </table> <p>Do you agree with John’s work? Explain. Recalculate any answer you estimate to be incorrect.</p> <p>18.1 Amy says she corrects her own calculations by adding to check subtraction and subtracting to check addition. Use Amy’s strategy to check her work.</p> <table style="margin-left: 40px;"> <tr><td>727</td><td>806</td></tr> <tr><td><u>+264</u></td><td><u>-369</u></td></tr> <tr><td>991</td><td>447</td></tr> </table> <p>Do you think Amy’s calculations are correct? Explain. Redo any calculations that are incorrect.</p>	+	0	1	2	3	4	5	6	7	8	9	0											1											2											3											4											5											6											7											8											9											X	0	1	2	3	4	5	6	7	0									1									2									3									4									5									6									7									247	607	<u>+192</u>	<u>-288</u>	339	481	727	806	<u>+264</u>	<u>-369</u>	991	447
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Students will:


- demonstrate an understanding of and proficiency with calculations
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General Outcome	Specific Outcomes	Illustrative Examples
<p>Use and justify an appropriate calculation strategy or technology to solve problems.</p>	<p>19. Justify the choice of method for addition and subtraction, using:</p> <ul style="list-style-type: none"> • estimation strategies • mental mathematics strategies • manipulatives • algorithms • calculators. <p>[C, PS, R, T]</p>	<p>19.1 You wish to purchase a hamburger for \$2.35, a drink for \$0.95 and a cone for \$1.75. You have a \$5.00 bill. Will it be enough? Should you use estimation, a calculator or manipulatives? Explain your choice.</p> <p>19.2 Chris and Ismail like to add numbers in their heads, but each has a different method.</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>Chris</p> </div> <div style="text-align: center;">  <p>Ismail</p> </div> </div> <p>Explain each method. Choose one. Use it to describe adding each of the following.</p> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <div style="border: 1px solid black; padding: 2px 10px;">$67 + 26$</div> <div style="border: 1px solid black; padding: 2px 10px;">$34 + 58$</div> <div style="border: 1px solid black; padding: 2px 10px;">$237 + 58$</div> </div>

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

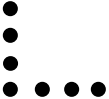
General Outcome	Specific Outcomes	Illustrative Examples		
Use and justify an appropriate calculation strategy or technology to solve problems.	20. Calculate products and quotients, using estimation strategies and mental mathematics strategies. [E, R]	<p>20.1 If you buy all the items pictured below, how much will they cost?</p>  <p>Arnie and Cindy estimated the cost as follows:</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 50%; vertical-align: top;"> <p>Arnie</p> $\begin{array}{r} 2 \times \\$2 = \\$4 \\ 3 \times \\$1 = \underline{\\$3} \\ \\$7 \end{array}$ </td> <td style="width: 50%; vertical-align: top;"> <p>Cindy</p> $\begin{array}{r} 2 \times \\$3 = \\$6 \\ 1 \times \\$2 = \\$2 \\ 1 \times \\$2 = \\$2 \\ 1 \times \underline{\\$2} = \underline{\\$2} \\ \\$12 \end{array}$ </td> </tr> </table> <p>Explain each one's strategy. Which strategy would you use? Why? Use a calculator to find the exact cost.</p> <p>The regular price for an 8-roll bath tissue pack is \$2.10. Arnie says they saved about \$1.20 on the bath tissue. Cindy says they saved about \$0.90. Explain how each child arrived at an answer for the saving. Find the exact saving. Which estimation strategy provided the closer solution for the savings? Why?</p>	<p>Arnie</p> $\begin{array}{r} 2 \times \$2 = \$4 \\ 3 \times \$1 = \underline{\$3} \\ \$7 \end{array}$	<p>Cindy</p> $\begin{array}{r} 2 \times \$3 = \$6 \\ 1 \times \$2 = \$2 \\ 1 \times \$2 = \$2 \\ 1 \times \underline{\$2} = \underline{\$2} \\ \$12 \end{array}$
<p>Arnie</p> $\begin{array}{r} 2 \times \$2 = \$4 \\ 3 \times \$1 = \underline{\$3} \\ \$7 \end{array}$	<p>Cindy</p> $\begin{array}{r} 2 \times \$3 = \$6 \\ 1 \times \$2 = \$2 \\ 1 \times \$2 = \$2 \\ 1 \times \underline{\$2} = \underline{\$2} \\ \$12 \end{array}$			

Grade 3

Strand: Patterns and Relations (Patterns)

Students will:

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

General Outcome	Specific Outcomes	Illustrative Examples																											
<p>Investigate, establish and communicate rules for numerical and non-numerical patterns, including those found in the home, and use these rules to make predictions.</p>	<ol style="list-style-type: none"> Sort, concretely and pictorially, using two or more attributes. [CN, PS, V] Use objects and concrete models to explain the rule for a pattern, such as those found on addition and multiplication charts. [C, R, V] Make predictions based on addition and multiplication patterns. [PS, R] 	<p>1.1 Write the numerals from 0 to 10 on separate scraps of paper. Sort them according to the rules given. Record your work using drawings and numbers.</p> <table border="1" data-bbox="1233 505 1655 631"> <tr> <td></td> <td>Even</td> <td>Odd</td> </tr> <tr> <td><5</td> <td></td> <td></td> </tr> <tr> <td>5 or >5</td> <td></td> <td></td> </tr> </table> <p>2-3.1 Make the next four shapes in this sequence.</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>1</p> </div> <div style="text-align: center;">  <p>2</p> </div> <div style="text-align: center;">  <p>3</p> </div> <div style="text-align: center;">  <p>4</p> </div> </div> <p>Complete the table.</p> <table border="1" data-bbox="1228 1109 1843 1239"> <tr> <td>Position</td> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> <td>6</td> <td>7</td> <td>8</td> </tr> <tr> <td>Number of counters</td> <td>1</td> <td>3</td> <td>5</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table> <p>How many counters will there be in the 12th shape? The 15th shape?</p>		Even	Odd	<5			5 or >5			Position	1	2	3	4	5	6	7	8	Number of counters	1	3	5					
	Even	Odd																											
<5																													
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Grade 3

Strand: Patterns and Relations (Patterns)

Students will:

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

General Outcome	Specific Outcomes	Illustrative Examples														
Investigate, establish and communicate rules for numerical and non-numerical patterns, including those found in the home, and use these rules to make predictions.		<p>2-3.2 Look carefully at the numbers provided in the table.</p> <table border="1" data-bbox="1244 496 1897 594"><tbody><tr><td>Top row</td><td>1</td><td>2</td><td>3</td><td></td><td>5</td><td>6</td></tr><tr><td>Bottom row</td><td></td><td>16</td><td></td><td>32</td><td>40</td><td></td></tr></tbody></table> <p>What number do you think belongs in the empty box on the top row of the chart? Why? What numbers belong in the empty boxes in the bottom row? Why? Complete the chart. You may use a calculator. Explain in writing what it tells you about spiders. Write a number sentence to show how to calculate the number of legs on six spiders.</p>	Top row	1	2	3		5	6	Bottom row		16		32	40	
Top row	1	2	3		5	6										
Bottom row		16		32	40											

Grade 3

Strand: Patterns and Relations (Patterns)

Students will:

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

General Outcome	Specific Outcomes	Illustrative Examples																																																																																																																									
<p>Investigate, establish and communicate rules for numerical and non-numerical patterns, including those found in the home, and use these rules to make predictions.</p>		<p>2-3.3 Describe the patterns you see in the rows, columns and diagonals of the addition chart.</p> <table border="1" data-bbox="1510 496 1940 907"> <tr><td>+</td><td>0</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td></tr> <tr><td>0</td><td>0</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td></tr> <tr><td>1</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>10</td></tr> <tr><td>2</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>10</td><td>11</td></tr> <tr><td>3</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>10</td><td>11</td><td>12</td></tr> <tr><td>4</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>10</td><td>11</td><td>12</td><td>13</td></tr> <tr><td>5</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>10</td><td>11</td><td>12</td><td>13</td><td>14</td></tr> <tr><td>6</td><td>6</td><td>7</td><td>8</td><td>9</td><td>10</td><td>11</td><td>12</td><td>13</td><td>14</td><td>15</td></tr> <tr><td>7</td><td>7</td><td>8</td><td>9</td><td>10</td><td>11</td><td>12</td><td>13</td><td>14</td><td>15</td><td>16</td></tr> <tr><td>8</td><td>8</td><td>9</td><td>10</td><td>11</td><td>12</td><td>13</td><td>14</td><td>15</td><td>16</td><td>17</td></tr> <tr><td>9</td><td>9</td><td>10</td><td>11</td><td>12</td><td>13</td><td>14</td><td>15</td><td>16</td><td>17</td><td>18</td></tr> </table> <p>Draw an outline around any 2 by 2 square. Use addition to find another pattern. Can you find the same pattern in 3 by 3 squares? Draw an outline around any three numbers in a row or column. What is true about the middle number? Does this pattern work on any five numbers in a row or column? Report your discoveries in your journal.</p>	+	0	1	2	3	4	5	6	7	8	9	0	0	1	2	3	4	5	6	7	8	9	1	1	2	3	4	5	6	7	8	9	10	2	2	3	4	5	6	7	8	9	10	11	3	3	4	5	6	7	8	9	10	11	12	4	4	5	6	7	8	9	10	11	12	13	5	5	6	7	8	9	10	11	12	13	14	6	6	7	8	9	10	11	12	13	14	15	7	7	8	9	10	11	12	13	14	15	16	8	8	9	10	11	12	13	14	15	16	17	9	9	10	11	12	13	14	15	16	17	18
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Grade 3

Strand: Patterns and Relations (Patterns)

Students will:

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

General Outcome	Specific Outcomes	Illustrative Examples																																						
<p>Investigate, establish and communicate rules for numerical and non-numerical patterns, including those found in the home, and use these rules to make predictions.</p>		<p>2-3.4 Look at the number pairs—7, 14; 11, 22; and 14, 28. What pattern do you see in the number pairs? Use the pattern to help you fill in the missing numbers.</p> <table border="1" data-bbox="1239 518 2279 617"> <tr> <td>7</td> <td>11</td> <td>14</td> <td>10</td> <td></td> <td>25</td> <td></td> </tr> <tr> <td>14</td> <td>22</td> <td>28</td> <td></td> <td>18</td> <td></td> <td>32</td> </tr> </table> <p>What pattern(s) helps you fill in the boxes in this example?</p> <table border="1" data-bbox="1239 709 2131 808"> <tr> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td></td> <td>6</td> </tr> <tr> <td></td> <td>7</td> <td>10</td> <td>13</td> <td>16</td> <td></td> </tr> </table> <p>Make up your own pattern, using addition or multiplication. Complete a matching chart.</p> <table border="1" data-bbox="1239 902 2131 1002"> <tr> <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> </tr> </table> <p>2-3.5 Enter 17 on your calculator. Program the calculator to skip-count by 5s. Record the first five numbers shown on the screen. Predict the next five numbers. Check. What pattern do you see in the ones place? Tens place? Will each of the following numbers be in the counting sequence: 83? 100? 107? How can you check?</p>	7	11	14	10		25		14	22	28		18		32	1	2	3	4		6		7	10	13	16													
7	11	14	10		25																																			
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1	2	3	4		6																																			
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Grade 3

Strand: Shape and Space (Measurement)

Students will:

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

General Outcome	Specific Outcomes	Illustrative Examples
<p>Estimate, measure and compare, using whole numbers and primarily standard units of measure.</p>	<ol style="list-style-type: none"> 1. Select the most appropriate standard unit, including km, to measure length. [E, R, V] 2. Describe the relationships among cm, dm and m. [C] 3. Estimate, measure, record, compare and order objects by length, height and perimeter, using standard units. [E, PS] 4. Select an appropriate nonstandard unit to measure area. [E, V] 5. Estimate, measure, record, compare and order shapes by area, using nonstandard units. [E, PS] 6. Construct a variety of shapes given a specific area in nonstandard units. [PS, V] 	<p>1.1 Olenka needs to measure the length of her classroom. She has a measuring tape that is only 150 cm long and is divided into mm, cm, dm and m. What unit should she use? Explain your reason. Use a measuring tape to measure the length of your room.</p> <p>3.1 Which is longest, the distance around the top edge of a waste basket, the perimeter of a chair seat or the length of the teacher's desk? Predict the measurement of each. Use a measuring tape to check your estimates. Were your estimates close?</p> <p>4-5 Sheets of newspaper or used writing paper are available to cover the classroom floor before a painting lesson. Which size paper would be best to use? Why? Look at your classroom floor. About how many sheets of newspaper do you need to cover the floor? Explain your estimation strategy. How might you use only one sheet of newspaper to actually measure the floor? Measure and record the number.</p> <p>6.1 You are given two congruent squares. Each square is one unit of area. Fold one square on the diagonal. Cut on the fold line. Describe the two new pieces. Use all three pieces to make different (noncongruent) shapes with an area of two square units. If only edges of the same length are placed together, how many different shapes with an area of two square units are possible?</p>

Grade 3

Strand: Shape and Space (Measurement)

Students will:

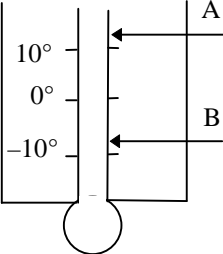
- describe and compare everyday phenomena, using either direct or indirect measurement.

General Outcome	Specific Outcomes	Illustrative Examples
<p>Estimate, measure and compare, using whole numbers and primarily standard units of measure.</p>	<p>7. Select an appropriate object or nonstandard unit to measure capacity or volume of a container. [E, V]</p> <p>8. Estimate, measure, record, compare and order containers by volume/capacity, using:</p> <ul style="list-style-type: none"> • nonstandard units • litres. <p>[E, PS]</p> <p>9. Estimate, measure, record, compare and order the mass (weight) of objects, using standard units (g, kg). [E, PS]</p> <p>10. Construct objects to equal a given mass (weight). [PS]</p> <p>11. Estimate and measure the passage of time, using standard units; seconds, minutes, hours, days, weeks, months, years. [E]</p> <p>12. Read and write the days of the week and months of the year. [C]</p>	<p>7–8 You are to fill an ice cream pail with water. Which would be best to use to fill the pail—a cup, a spoon, a litre milk carton or a pop can? Explain. Now, using the measuring object chosen, carry out the task and record your findings in your journal.</p> <p>9.1 Fill three different empty tin cans with sand, such as a drink can, a soup can and a tuna can. Estimate the weight of each in grams. Use standard masses and a balance scale to check your estimates. Are you good at estimating mass? Explain.</p> <p>10.1 Build a stack of books with a total mass of about 1 kg. Use a scale to check the mass of the stack. How does this help you to build a stack of books with a total mass of 5 kg?</p> <p>10.2 Fill a plastic bag with about 250 g of plastic chips. Measure to check your estimate. How does the 250 g bag help you estimate the number of chips in 100 g?</p> <p>11.1 Explain if you would use seconds, minutes, hours, days, weeks, months or years to measure:</p> <ul style="list-style-type: none"> – how long it takes to count to ten – how old you are – the length of your favourite TV show.

Grade 3
Strand: Shape and Space (Measurement)

Students will:

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

General Outcome	Specific Outcomes	Illustrative Examples
<p>Estimate, measure and compare, using whole numbers and primarily standard units of measure.</p>	<p>13. Relate days to years. [CN]</p> <p>14. Read digital clocks and write time to the nearest minute, using 12-hour notation. [C]</p> <p>15. Estimate, read and record temperature to the nearest degree C. [E]</p> <p>16. Relate temperature to everyday situations. [CN]</p> <p>17. Create and recognize that a given value of money can be represented in many different ways. [PS, R]</p> <p>18. Estimate, count and record collections of coins and bills up to \$10. [E]</p>	<p>15–16 Study the thermometer. Print the temperatures indicated by arrows A and B. Research the high and low temperatures in your community last year. Draw a thermometer. Label and identify both the high and low temperatures.</p>  <p>16.1 Name a temperature that is about right for each: – viewing a movie at home – swimming in an outdoor pool – skating on an outdoor rink – calling the doctor, if you are running a fever.</p> <p>17.1 How many ways can 40¢ be made, without using pennies?</p> <p>17.2 Mom has 50¢, in nickels and dimes. There are more dimes. How many nickels does she have?</p> <p>18.1 Imagine stacks of coins equal in height to your pointer finger. Estimate the number of coins, and the total value of each stack, if it is made of dimes, of quarters, of dollar coins. Build the stacks, using real money. Count, and record the number of coins and the value of each stack. Compare with each estimate. How does the length of your pointer finger compare to the length of a five dollar roll of dimes?</p>

Grade 3

Strand: Shape and Space (Measurement)

Students will:

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

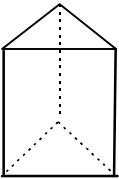
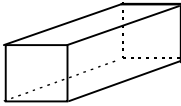
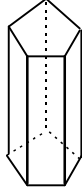
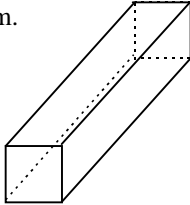
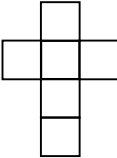
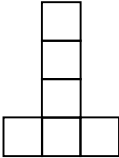
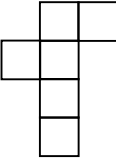
General Outcome	Specific Outcomes	Illustrative Examples
Estimate, measure and compare, using whole numbers and primarily standard units of measure.	<p>19. Make purchases and change up to \$10. [PS]</p> <p>20. Read and write both money notations (89¢ and \$0.89). [C]</p> <p>21. Recognize the value of bills up to \$100. [C]</p>	<p>19.1 Dad pays for a \$3.49 present with a ten dollar bill. Count back the change he should receive, beginning from \$3.49.</p> <p>19.2 I have more than a dollar in coins in my pocket, but I can't make change for a dollar. Which coins do I have in my pocket? Look for multiple solutions.</p> <p>20.1 Ross had a dollar before he spent seventeen cents. Using numbers and symbols only, what are two ways to write the amount of money he has remaining?</p> <p>21.1 Look at Canadian bills. What is the value of the bill with a picture of: – a kingfisher? – an osprey? – a loon family?</p>

Grade 3

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.

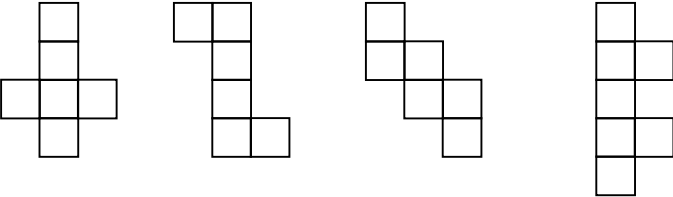
General Outcome	Specific Outcomes	Illustrative Examples
<p>Describe, classify, construct and relate 3-D objects and 2-D shapes.</p>	<p>22. Identify and count faces, vertices and edges of 3-D objects. [E]</p> <p>23. Identify and name faces of a 3-D object with appropriate 2-D names. [C, V]</p> <p>24. Describe and name pyramids and prisms by the shape of the base. [C]</p> <p>25. Demonstrate that a rectangular solid has more than one net. [PS, V]</p>	<p>22.1 Count the number of faces and vertices. Is there a pattern? Explain.</p> <div style="display: flex; justify-content: space-around; align-items: center;">    </div> <p>23.1 Choose an assortment of objects and draw, trace or make prints of the faces. Identify and name the faces.</p> <p>24.1 A pyramid has four triangular faces. What must be the shape of the base?</p> <p>24.2 Identify the shape of the base, and name the prism.</p> <div style="display: flex; justify-content: center; align-items: center;">  </div> <p>25.1 Cut out each of the following nets. Fold each one to make an object. What object does each net make?</p> <div style="display: flex; justify-content: space-around; align-items: center;">    </div> <p style="text-align: right;">Make a different net for the same object.</p>

Grade 3

Strand: Shape and Space (3-D Objects and 2-D Shapes)

Students will:

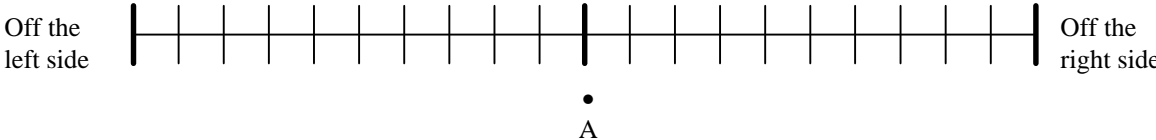
- describe the characteristics of 3-D objects and 2-D shapes, and analyze the relationships among them.

General Outcome	Specific Outcomes	Illustrative Examples
<p>Describe, classify, construct and relate 3-D objects and 2-D shapes.</p>	<p>26. Compare and contrast two 3-D objects. [C, CN]</p> <p>27. Recognize congruent (identical) 3-D objects and 2-D shapes. [CN]</p> <p>28. Explore, concretely, the concepts of perpendicular, parallel and intersecting lines on 3-D objects. [R, V]</p>	<p>25.2 Cut out around these shapes. Which will fold into a box (cube)? Show me.</p>  <p>26.1 Use as many geometry words and ideas as you can think of to describe a table in your classroom. How is the table like the classroom door? How is it different? Choose two other objects to compare and contrast.</p> <p>26.2 Which solids in a collection of 3-D objects have at least one pair of parallel faces? Describe the solids that are left out of the group.</p> <p>27.1 Find two boxes which are congruent. How do you know that they are congruent?</p> <p>Identify two objects and two shapes in your classroom that are almost, but not exactly congruent. How do you know this?</p> <p>28.1 Choose an appropriate empty container to demonstrate:</p> <ul style="list-style-type: none"> – parallel faces/lines – perpendicular faces/lines – intersecting faces/lines.

Grade 3
Strand: Shape and Space (Transformations)

Students will:

- perform, analyze and create transformations.

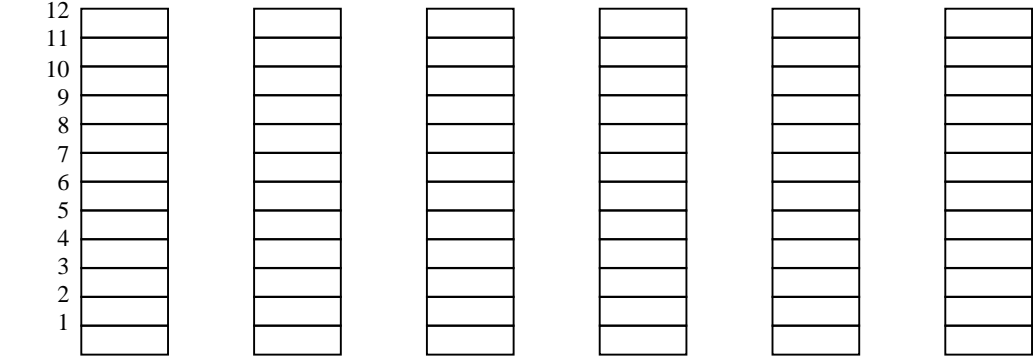
General Outcome	Specific Outcomes	Illustrative Examples
<p>Use numbers and direction words to describe the relative positions of objects in one dimension, using everyday contexts.</p>	<p>29. Communicate and apply terms of direction, such as north or south and east or west, and relate to maps. [C, CN, T]</p> <p>30. Graph whole number points on a horizontal number line or a vertical number line. [CN, V]</p> <p>31. Trace a path, using oral or written instructions. [C, PS]</p>	<p>29.1 Let the front of the room be North. The student “turtle” always begins by facing North. Plan a program to move a student “turtle” from your desk to the classroom door, using directions and the number of steps. Test your program. Does it work?</p> <p>30.1 What is the temperature in your classroom? Draw a vertical number line to show the temperature. Make your number line show 10 more degrees and 10 fewer degrees than the room’s temperature. Label your number line.</p> <p>31.1 Start at A. You get six turns to see where your trip takes you along the line. Each roll of a die is a turn. If you roll an even number, take that many steps to the right. If you roll an odd number, take that many steps to the left. Keep track of where you are on the line at the end of six turns. Do this for 10 games. What patterns do you see? Tell when you are likely to go off the line.</p> <div style="text-align: center;">  </div>

Grade 3

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 first- and second-hand data, display the results in more than one way, and interpret the data to make predictions.</p>	<p>1. Collect data, using measuring devices and printed/technology resources. [PS, T]</p>	<p>1.1 Decide how much time you spend during a 24-hour day on each activity shown below. Colour a rectangle, or part of a rectangle, for each whole or part hour you spend on that activity.</p>  <p style="text-align: center;">Hours</p> <p style="text-align: center;">Activities</p>
	<p>2. Display data, using rank ordering. [C,V]</p>	<p>2-3 Order the activities in 1.1 above from those taking the greatest part of the day to those taking the least. Display your data in the new order.</p>
	<p>3. Display the same data in more than one way. [PS]</p>	

What conclusions can be made about how you use your time?

Grade 3
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 first- and second-hand data, display the results in more than one way, and interpret the data to make predictions.</p>	<p>4. Make predictions and inferences when solving similar problems. [CN, E, PS]</p>	<p>3–4 Aldo surveyed two Grade 3 classes to find their favourite movies/videos. This is his tally chart.</p> <table border="1" data-bbox="1231 444 2231 781"> <thead> <tr> <th>Movie/Video</th> <th>Tally</th> <th>Total</th> </tr> </thead> <tbody> <tr> <td>1st Favourite</td> <td> </td> <td></td> </tr> <tr> <td>2nd Favourite</td> <td> </td> <td></td> </tr> <tr> <td>3rd Favourite</td> <td> </td> <td></td> </tr> <tr> <td>4th Favourite</td> <td> </td> <td></td> </tr> <tr> <td>5th Favourite</td> <td> </td> <td></td> </tr> </tbody> </table> <p>Complete the tally chart. How many children did Aldo survey? How many children voted for the 2nd favourite? How many did not vote for the 2nd favourite? How are the two answers related? Show the results of Aldo’s survey on a bar graph. Make a pictograph to show Aldo’s information. Let one picture represent two votes. Which graph do you think best shows Aldo’s information? Explain your answer. What five movies/videos do you suppose would be the favourites in your class? Predict your tally, if you surveyed your class with your list of five favourite movies/videos. Carry out your survey. Does your tally chart match your prediction? Why or why not?</p> <p>4.1 A magazine asked children to vote YES or NO to the question: “Do parents and coaches care too much about winning?”</p> <table data-bbox="1338 1203 1526 1263"> <tr> <td><u>YES</u></td> <td><u>NO</u></td> </tr> <tr> <td>38</td> <td>29</td> </tr> </table> <p>How many children were asked for their opinion? How many more children said yes than no? If twice as many children had been asked, about how many would have said YES? NO? Predict what children in your class would say? Conduct a survey to check your prediction.</p>	Movie/Video	Tally	Total	1st Favourite			2nd Favourite			3rd Favourite			4th Favourite			5th Favourite			<u>YES</u>	<u>NO</u>	38	29
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Grade 3
 Strand: Statistics and Probability (Data Analysis)

Students will:

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

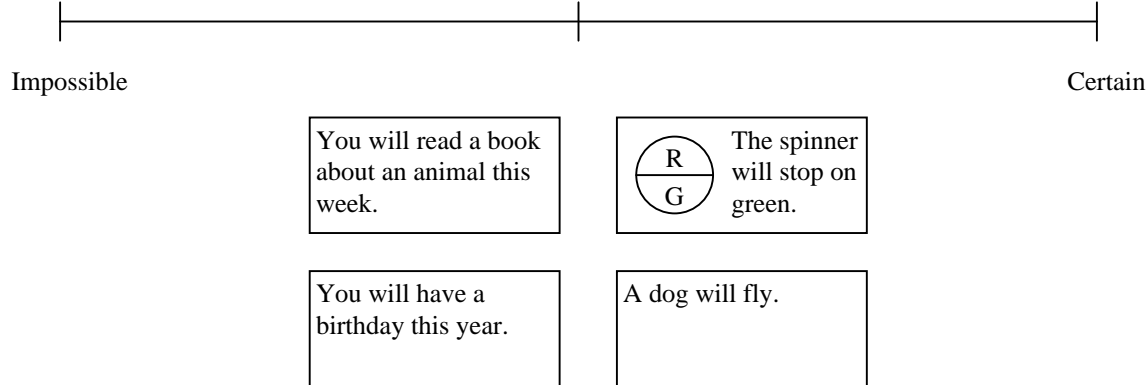
General Outcome	Specific Outcomes	Illustrative Examples										
Collect first- and second-hand data, display the results in more than one way, and interpret the data to make predictions.	5. Obtain new information by performing arithmetic operations on the data. [E, PS, T]	5.1 Five friends each recorded the number of minutes to get to and from school in one week. <table data-bbox="1223 472 1411 630"> <tr><td>Ron</td><td>70</td></tr> <tr><td>Dan</td><td>100</td></tr> <tr><td>Juan</td><td>450</td></tr> <tr><td>Beth</td><td>200</td></tr> <tr><td>Dana</td><td>90</td></tr> </table> About how many minutes per day does each student spend getting to and from school? What might Juan say when he looks at the total time spent getting to and from school by his four friends? Why?	Ron	70	Dan	100	Juan	450	Beth	200	Dana	90
Ron	70											
Dan	100											
Juan	450											
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Grade 3

Strand: Statistics and Probability (Chance and Uncertainty)

Students will:

- use experimental or theoretical probability to represent and solve problems involving uncertainty.

General Outcome	Specific Outcomes	Illustrative Examples
<p>Use simple probability experiments, designed by others, to explain outcomes.</p>	<p>6. Describe the likelihood of an outcome, using such terms as more likely, less likely, chance. [C, R]</p> <p>7. Conduct a probability experiment, choose an appropriate recording method, and draw conclusions from the results. [C, E, PS]</p>	<p>6.1 Identify where each card provided belongs on the line below. Explain your placements.</p> <div style="text-align: center;">  <p>The diagram shows a horizontal line with vertical tick marks at each end, labeled 'Impossible' on the left and 'Certain' on the right. Below the line are four rectangular boxes containing the following statements: <ul style="list-style-type: none"> 'You will read a book about an animal this week.' 'The spinner will stop on green.' (Next to a spinner with 'R' on top and 'G' on bottom) 'You will have a birthday this year.' 'A dog will fly.' </p> </div> <p>7.1 How many ways can 2 counters, of two different colours, land when they are spilled? Explain your answer with coloured drawings and compare your drawings with those of a classmate. If you spill the counters 10 different times, what colour combination would you expect to see most often? Why? Conduct an experiment to test your prediction. Keep a record of each turn. Was your prediction correct? Repeat your experiment two more times. Carefully keep records of your results. What is your conclusion?</p>

