

# Complete Canadian Curriculum



Grade  
**4**

# Math



Popular Canada

# Number Sense and Numeration

- **Place Value** – the position of a digit in a number that tells its value

e.g.

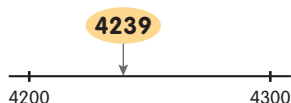
Thousands	Hundreds	Tens	Ones
4	2	3	9

4 is in the thousands place and means 4000.

$$= 4000 + 200 + 30 + 9 \quad \leftarrow \text{expanded form}$$

- **Rounding** – changing a number to a simpler number

e.g. Round **4239** to the nearest hundred.



4239 is rounded to 4200 .



**1st** Find the two multiples of 100 that 4239 falls between.

**2nd** Mark 4239. 4239 is closer to 4200.

If the number is in the middle of the number line, round the number to the right end.

- **Addition/Subtraction of 4-digit Numbers**

e.g.  $2995 + 1688 = \underline{\hspace{2cm}}$

## Vertical Addition

$$\begin{array}{r} \textcircled{1} \textcircled{1} \textcircled{1} \\ 2995 \\ + 1688 \\ \hline 4683 \end{array}$$

You can use addition to check the answer of a subtraction problem.

Add digits in each place separately.

$$2995 + 1688$$

$$\bullet \quad 3000 + 1500 + 170 + 13 \quad \leftarrow \text{Add.}$$

$$\bullet \quad 4000 + 600 + 80 + 3 = \underline{4683} \quad \leftarrow \text{Regroup.}$$

Rewrite the number.

$$\begin{aligned} & 2995 + 5 + 1683 \quad \leftarrow \text{Rewrite.} \\ & = 3000 + 1683 \\ & = 4683 \end{aligned}$$

- Multiplication** – 2-digit numbers by 1-digit numbers

e.g. Multiply the ones.

$$\begin{array}{r} 23 \\ \times 6 \\ \hline \end{array}$$

$6 \times 3 = 18$ ; write down 8 and carry the 1 to the tens column.

Multiply the tens.

$$\begin{array}{r} 23 \\ \times 6 \\ \hline 138 \end{array}$$

$6 \times 2 = 12$ ; add the carried over 1 to get 13 ( $12 + 1$ ).

So,  $23 \times 6 = 138$ .

- Division** – 2-digit numbers by 1-digit numbers

e.g. Divide the tens.

$$\begin{array}{r} 24 \\ 3 \overline{) 73} \\ \underline{6} \phantom{0} \\ 1 \phantom{0} \end{array}$$

$73 \div 3 = 24R1$

Divide the ones.

$$\begin{array}{r} 24R1 \\ 3 \overline{) 73} \\ \underline{6} \phantom{0} \\ 13 \\ \underline{12} \\ 1 \end{array}$$

### Division Terms

$$\begin{array}{r} 7R3 \\ 6 \overline{) 45} \\ \underline{42} \\ 3 \end{array}$$

.....

$$45 \div 6 = 7R3$$

dividend      divisor      quotient      remainder

e.g.

$$\begin{array}{r} 20R1 \\ 3 \overline{) 61} \\ \underline{6} \phantom{0} \\ 1 \end{array}$$



Sometimes we need to add "0" in the quotient.

- Mental Strategies for Multiplying/Dividing by 10, 100, or 1000**

**$\times 10, 100, \text{ or } 1000$**

Add 1, 2, or 3 zeros to the number.

$$5 \times 10 = 50$$

$$5 \times 100 = 500$$

$$5 \times 1000 = 5000$$

**$\div 10, 100, \text{ or } 1000$**

Remove 1, 2, or 3 zeros from the number.

$$9000 \div 10 = 900$$

$$9000 \div 100 = 90$$

$$9000 \div 1000 = 9$$

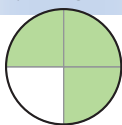


## Fractions

using standard fractional notation to describe the equal parts of a whole object or a set of objects

e.g.

4 equal parts;  
3 parts green



numerator (no. of green parts)

$\frac{3}{4}$

of the circle is green.

denominator (no. of equal parts)

**Equivalent Fractions** – fractions that represent the same parts of a whole object or a set of objects

e.g.



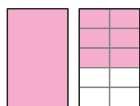
$\frac{3}{4}$



$\frac{6}{8}$

$\frac{3}{4}$  and  $\frac{6}{8}$  are equivalent fractions.

## Decimals



a decimal point

1 and 6 tenths

1 means 1; 6 means 0.6.

When you add or subtract decimal numbers, remember to align the decimal points. Then add or subtract as you would do with whole numbers.

## Measurement

### Time

1 hour = 60 minutes

1 decade = 10 years

1 century = 10 decades

### Finding Time Intervals by Using Subtraction

$$\begin{array}{r}
 1:52 \\
 \downarrow \\
 4:33
 \end{array}
 \begin{array}{r}
 \begin{array}{ccc}
 3 & 9 & 3 \\
 \cancel{4} & \cancel{3} & \cancel{3} \\
 - & 1 & 52 \\
 \hline
 2 & 41
 \end{array}
 \end{array}$$

Trade 1 h for 60 min.

The time interval is 2 h 41 min.

- **Length**

measuring the length, height, and distance using millimetres (mm), centimetres (cm), decimetres (dm), metres (m), and kilometres (km)

**mm      cm      dm      m      km**

smallest unit

biggest unit

**Relationships  
Between Units**

$$1 \text{ km} = 1000 \text{ m}$$

$$1 \text{ m} = 10 \text{ dm} = 100 \text{ cm}$$

$$1 \text{ dm} = 10 \text{ cm}$$

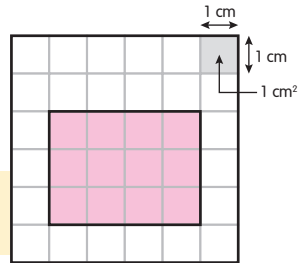
$$1 \text{ cm} = 10 \text{ mm}$$

- **Perimeter and Area**

measuring the perimeters and areas of polygons using standard units

**The Rectangle**

Perimeter: 14 cm      Area: 12 cm<sup>2</sup>



- **Capacity**

measuring the capacity using millilitres (mL) and litres (L)

$$2 \text{ L } 50 \text{ mL} = 2000 \text{ mL} + 50 \text{ mL} = \underline{2050} \text{ mL}$$

$$1 \text{ L} = 1000 \text{ mL}$$

↑  
big unit

↑  
small unit

- **Mass**

measuring the mass using grams (g) and kilograms (kg)

$$3 \text{ kg } 600 \text{ g} = 3000 \text{ g} + 600 \text{ g} = \underline{3600} \text{ g}$$

$$1 \text{ kg} = 1000 \text{ g}$$

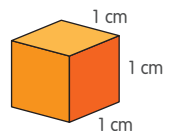
↑  
big unit

↑  
small unit

- **Volume** – the amount of space an object occupies

A centimetre cube with length, width, and height of 1 cm has a volume of 1 cm<sup>3</sup>.

Volume = 1 cm<sup>3</sup>



# Geometry

## • 2-D Shapes

**Quadrilaterals** – a polygon with 4 sides, such as a parallelogram

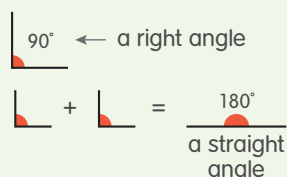


parallelogram

- 2 pairs of equal sides
- 2 pairs of parallel sides
- no lines of symmetry
- no right angles

**Right Angle** – an angle of  $90^\circ$

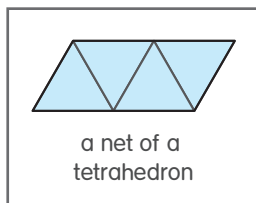
**Straight Angle** – an angle formed by two right angles; an angle of  $180^\circ$



## • 3-D Figures

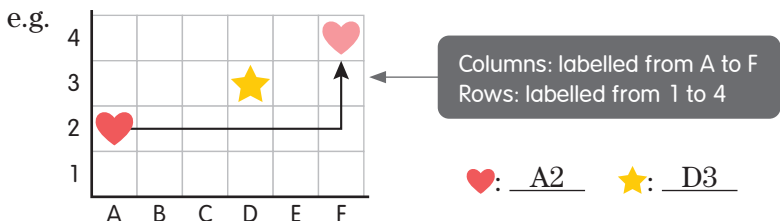
**Tetrahedron** – a 3-D figure with 4 faces; each face is an equilateral triangle

**Net** – a pattern that can be cut and folded to make a model of a 3-D figure



## Grids

**Grid System** – a system consisting of small identical squares with labelled columns and rows



Move ♥ to F4: 5 squares to the right and 2 squares up

## Patterning

recording a pattern in a table of values that shows the term numbers and the terms

e.g. Number Pattern: 8, 11, 14, 17, 20

The 3rd term in this pattern is 14 and the 6th term is 23.

Table of Values

Term	Term Number
1	8
2	11
3	14
4	17
5	20

## Graphs

### Stem-and-leaf Plot

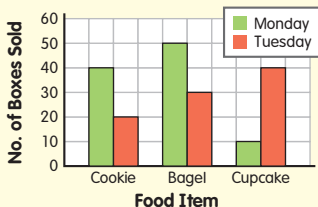
No. of Hot Dogs Sold in 10 Weeks

Stems	Leaves
3	6 6 8
4	2 2 5 5 5
5	0 1

42 hot dogs were sold each week for 2 of the weeks.

### Double Bar Graph

The Sales of Smith's Bakery



**Median** – the middle value in a set of values arranged in order

If there is an even number of numbers, the median is the average of the two middle numbers.

**Mode** – the value that shows up most often

Refer to the stem-and-leaf plot above. The median is 43.5 hot dogs (average of 42 and 45) and the mode is 45 hot dogs.

## Probability

The more probability experiments we have, the closer the results will be to the predicted one.

e.g.

Probability  
Experiments

Toss 10 times.

H: 4 times  
T: 6 times

Toss 100 times.

H: 47 times  
T: 53 times

Toss 100 times.



**Prediction**

H: 50 times  
T: 50 times



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