Parent Portal

Mathematics and Statistics in Year 9

In Year 9, the focus is on helping children see themselves as part of a bigger world and encouraging them to develop greater independence.

Search this document

CONTENTS

What your teen will learn in Maths

Your teen is learning to:

- build confidence using maths to solve real-world problems
- explore patterns in numbers, shapes, time, and data
- think logically and explain their reasoning clearly
- see how maths connects to everyday life like money, health, and design
- use data to make informed decisions and challenge misinformation
- strengthen communication, problem-solving, and critical thinking skills
- discover how maths can lead to exciting future careers.

Good maths skills and a positive view of themselves as maths learners will help your teen in the future. Maths is important for solving problems and creative thinking.

Encourage your teen to use the maths vocabulary they learn in class.

Number

Ideas to help at home

With your teen, you could:

- use ratios when cooking or baking — for example, by changing the recipe to cook for more or fewer people, and explaining how the ingredients change in proportion
- compare prices while shopping to look at discounts, calculate savings, or compare 'per 100g' prices to find the best deal
- play games like Monopoly to practise using money, perhaps as the banker
- make a savings plan.

Your teen is learning to:

- read, write, represent, compare, order and convert between fractions, decimals and percentages
- add, subtract, multiply, divide integers, fractions, and decimals and solve problems, in real life contexts
- use estimation and rounding to predict and check results
- write and order whole and decimal numbers using scientific notation (3.24×10^3)
- recognise properties of cubes and cube roots
- use exponents of 0 and 1
- find fractions and percentages of whole amounts and work backwards to find the whole amount from a given fraction
- use ratios to divide an amount into parts and find a second part given the whole
- work out how much money is made or lost in a sale and how much a discount saves
- calculate GST and simple interest. For example, “what is 15% of $432?”.

Words your teen will be learning

Words include:

- GST
- index
- irrational number
- original amount
- precision
- rate
- reciprocal
- recurring
- scientific notation
- simple interest.

Algebra

Ideas to help at home

With your teen, you could:

- make chores fun with formulas. For example, by using a formula like 'total time equals number of tasks times time per task' to estimate how long chores will take
- create a 'mystery number' game. Think of a number, give clues like '3 times my number plus 8 is 35', and your teen solves it
- use a digital tool together, like a spreadsheet, to practise writing a formula into a cell.

Your teen is learning to:

- simplify, expand, and factorise algebraic expressions
- solve equations and problems with unknown values, whole numbers, decimals and fractions
- use formulas by putting in numbers and rearranging them to find different parts, such as temperature conversions or the volume of a 3D shape
- understand and draw straight-line graphs using tables and rules like y = mx + c, where:
  - m shows how steep the line is
  - c shows where the line starts on the graph
- use tables, graphs and diagrams to find the rule for a linear pattern.

Words your teen will be learning

Words include:

- expanding
- gradient, slope
- intercept
- linear relationship
- rate of change.

Measurement

Ideas to help at home

With your teen, you could:

- use measuring cups and spoons to estimate and then measure ingredients — talk about millilitres, litres, grams, and kilograms and convert measurements as needed
- draw a room or garden to scale on graph paper, for example, 1 square equals 1 metre, then calculate the new area or perimeter
- build a small model out of building blocks, scale it up by doubling each dimension, and compare the size, area, and volume of both versions
- talk about measurements in athletics results, such as sprint times and jump distances
- plan a schedule, agenda, or journey using timetables and show the duration, start and finish times of each event, for example, if our travel time into town is 23 minutes, and the movie starts at 11.30am and lasts 143 minutes, what time shall we leave home, and what time shall we meet our friends afterwards?

Your teen is learning to:

- estimate, calculate, and convert measurements accurately and choose the correct units for different situations — for example, centimetres to measure height, millimetres to measure lengths of wood
- use Pythagoras' theorem to find missing hypotenuse in right-angled triangles and that the given lengths in a right-angled triangle satisfy the theorem
- calculate the area of shapes like parallelograms, trapeziums and kites by relating them to rectangles
- work out the circumference of full circles and the perimeter of half and quarter circles
- solve problems involving speed, distance and time, understand and reason about time durations including different units (for example, seconds, minutes) and fractions or decimals of time (for example, milliseconds).

Words your teen will be learning

Words include:

- accuracy
- chord
- congruent
- derived unit
- hypotenuse
- mega-, giga-, tera-
- micro-, nano-
- Pythagorean triple
- speed.

Geometry

Ideas to help at home

With your teen, you could:

- discuss everyday symbols and notice shapes that have been reflected or rotated, for example, car logos, fashion logos or flags
- use a printed or online map to plan a journey – measure distance using the scale and give directions using compass points.

Your teen is learning to:

- identify and describe parts of a circle, like the radius, diameter, chord, and circumference
- figure out unknown angles when lines cross or when working with parallel lines and transversals (the line that cuts through the parallel lines)
- prove lines are parallel using given and calculated angles
- build and draw 3D shapes like rectangular and triangular prisms using nets (flat patterns), plan views (top-down), and isometric drawings (3D-looking sketches)
- move shapes around the coordinate plane by:
  - translating – sliding
  - reflecting – flipping across a mirror line
  - rotating – turning around a point by 90 degrees, 180 degrees and so on.

Words your teen will be learning

Words include:

- co-interior, corresponding or alternate angles
- intersect
- transversal.

Statistics

Ideas to help at home

With your teen, you could keep track of steps, reading time, homework, or online time over a period and graph it. Look for patterns and discuss why some days were different to others.

You could also spot misleading graphs and:

- look at graphs in adverts, on videos, TV, or social media, and ask:
  - 'Does this graph start at 0?'
  - 'Is the scale fair?'
  - 'Does it match what the data says?'
- discuss ways to check the claims made by people on TV or social media.

Your teen is learning to:

- plan and collect multivariate data to answer a statistical question where 1 variable is categorical and 1 is numerical
- calculate minimum, lower quartile, median, upper quartile, maximum values and the range and interquartile range
- collect or source data and check that it is valid and useful
- organise data clearly, sometimes by creating new categories or variables
- create different types of graphs and charts to show patterns and relationships
- describe what the data shows and make predictions based on trends
- explain their findings clearly, and how the findings relate to the data
- reflect on their predictions and how well their investigation worked
- evaluate how others collect and present data, and check if their claims are fair or misleading.

Words your teen will be learning

Words include:

- comparison investigation, relationship investigation, summary investigation, time-series investigation
- distribution
- explanatory variable
- line or curve of best fit
- multivariate data
- population
- quartile.

Probability

Ideas to help at home

With your teen, you could:

- predict how often 'heads' will come up in 50 coin tosses, then record results and compare them to the prediction
- try online simulators or spreadsheet apps to run large numbers of trials.

You could talk about luck and chance. Discuss ads or games that claim something is “lucky” or “random” and then:

- ask if it’s really fair
- talk about situations involving chance, such as “there is no chance they will kick the penalty from that angle".

Your teen is learning to:

- plan and run chance-based experiments like coin tosses or dice rolls for a large number of trials
- list all possible outcomes and predict what might happen
- use digital tools like apps or spreadsheets to run lots of trials quickly
- record and graph results to compare the actual results with what was expected
- estimate probabilities and explain why results might differ from predictions.

Words your teen will be learning

Words include:

- elements of chance
- joint events
- mutually exclusive
- probability estimate
- simulation.

Last updated: 18 February 2026

Te Kāwanatanga o Aotearoa
New Zealand Government