Vertex Academy

Free maths and science tools for your class

21 interactive tools and 553 lesson pages for the NZ Curriculum and NCEA. Free, no login.
vertexacademy.co.nz/learn

Scan for /learn

Maths tools 11 tools · Years 1 to 13

Graphing calculator /graphing-calculator
Plot functions, sliders, tables, roots and turning points, integrals.

Triangle solver /triangle-solver
Pythagoras, SOH CAH TOA, sine and cosine rules, with working.

Probability calculator /probability-calculator
Normal, binomial, Poisson and more, with the area shaded.

Geometry board /geometry-board
Linked constructions you can drag; reflect, rotate, enlarge.

3D grapher /3d-grapher
Planes and surfaces; see where three planes meet, for Level 3.

Maths blocks /maths-blocks
Place value, fraction wall, number line, clock, NZ money.

Scientific calculator /scientific-calculator
Degrees or radians, nCr, logs; exact fractions, surds and π.

Statistics explorer /statistics-explorer
Dot and box plots, bootstrap, randomisation; NZ data or yours.

Probability simulator /probability-simulator
Coins, dice, spinners, bags: 10,000 trials against the theory.

Shapes and nets /shapes-and-nets
Six 3D shapes fold open into their nets; surface area and volume.

Money calculator /money-calculator
Pay after NZ income tax and KiwiSaver, GST, interest, loans.

Science tools 10 tools · Years 9 to 13

Periodic table /periodic-table
All 118 elements, electron shells, ions, trends as heat maps.

Cell explorer /cell-explorer
Plant, animal and bacterial cells; zoom into each organelle; quiz.

Genetics lab /genetics-lab
Punnett squares, family trees, DNA to protein and mutations.

Motion lab /motion-lab
Live distance-time and velocity-time graphs, forces, projectiles.

Sky and seasons /sky-and-seasons
Seasons, the Sun's path, the Moon from NZ, Matariki at dawn.

Chemistry bench /chemistry-bench
Ionic formulas, balancing equations, moles, concentration.

Body explorer /body-explorer
Heart and circulation, breathing, digestion, reflex arc, defence.

Food web /food-web
A NZ forest: remove stoats or rats and trace the effects.

Light and waves /light-and-waves
Lens and mirror ray diagrams, refraction, critical angle, $v = f\lambda$.

NZ hazards map /nz-hazards
2025 GeoNet earthquakes, volcanoes, the plate boundary.

For your class 553 lessons · 352 videos · maths Year 1 to Level 3, science Year 9 to Level 3

Use in class /learn
Every lesson becomes slides on the class screen; every tool goes full screen.

Extension problems NEW /extension/year-9
Ten olympiad-style problems a year, Year 5 to Level 3, worked solutions.

Worksheets NEW /worksheets
Pick lessons and 10 to 40 questions; print A4 with an answer page.

Search NEW /search
Find any lesson or tool by topic, year or NCEA standard number.

For your students no accounts: progress stays on their own device

Review and streak NEW /review
Wrong answers come back after 1, 3 and 7 days until they stick.

Watch this part NEW /learn
After a wrong answer, the part of the video that teaches it.

NCEA study plan /study-plan
Pick their exams, get a day-by-day plan and a calendar file.

Map and certificates NEW /map
Every lesson of a year fills in as they practise; a certificate at the end.

Summer packs NEW /summer/year-9
Six holiday weeks for students going into Years 9 to 13.

Reading aid NEW Aa on every lesson
Larger text, more spacing and a dyslexia-friendly font.

Vertex Academy · 2163 Great North Road, Avondale, Auckland · Spot an error? Every page has **Report a mistake**.
vertexacademy.co.nz/learn · hello@vertexacademy.co.nz