

Student Name: _____

Please write your name on *every* page.

How to Prepare for the NCC

The best way to prepare for the contest is to look at the past contests. You will be given 3 contest sections, depending on your year of birth. Please see the “Rules for Writing the NCC24” page for details.

Here is a list of topics that students may need to know. Not everything on the list will show up on the contest, and there could be topics on the contest that are not on the list.

List of Topics to Know

Consult the heading corresponding to your grade

Grade 3/4 (2016 or 2015)

- Basic arithmetic (addition, subtraction, multiplication, division). Meaning of the words sum, difference, product, quotient, and remainder.
- The conventional order of operations (BEDMAS). How brackets work.
- Triangles, squares, rectangles, and circles. Area and perimeter.
- Reading data from a graph.

Grade 5/6 (2014 or 2013)

All of the above, plus:

- Divisibility. What a prime number is.
- Prime factorization, GCD, LCM. Positive exponents.
- Adding, subtracting, multiplying, and dividing fractions.
- Trapezoids, rhombuses, and parallelograms. Equilateral, isosceles, and scalene triangles.

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- Angles.
- The Pythagorean theorem.
- Mean, median, and mode. Basic probability

Grade 7/8 (2012 or 2011)

All of the above, plus:

- Three-dimensional objects (Sphere, Cube, Rectangular Prism, Cylinder and Pyramid). Volume and surface area formulas for said shapes.
- Probability. Working with Percentages.
- Variables and Linear Equations
- Knowing about “choose” and “permute” may be useful.
- The 2-dimensional Cartesian plane (with x- and y-axes)

Grade 9/10 (2010 or 2009):

All of the above, plus:

- Using variables and solving quadratic equations.
- Factorials. Rational and irrational numbers
- Quadratic Equations
- Modular Arithmetic
- Inequalities
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