

Parent
Road Map
Mathematics
Pre-Kindergarten to Grade 5





PARENT ROAD MAP - MATHEMATICS AT NATIONS

At School of the Nations, the mathematics curriculum is based on current research and best practices in mathematics education. Our curriculum is in alignment with the Common Core State Standards for Mathematics and implements and reinforces the use of conceptual teaching to teach concepts in depth and with understanding rather than just asking students to apply rote procedures. In 2013, the National Council of Supervisors of Mathematics (NCSM) issued a position statement on the use of manipulatives in classroom instruction to improve student achievement. "[I]n order to develop every student's mathematical proficiency, leaders and teachers must systematically integrate the use of concrete and virtual manipulatives into classroom instruction at all grade levels." (NCSM, 2013). In our school, instructional strategies use visual models and manipulatives in a Concrete–Representational–Abstract (CRA) approach to help students make connections between concrete manipulatives and abstract mathematical ideas. Students discuss and share ideas while they investigate and learn the standards in the curriculum, focusing on the instruction priorities of the Common Core State Standards.

Helping your child learn outside of school

Research indicates that parents' involvement in their children's schoolwork is of great influence in student's success at school. However, being involved does not mean doing your child's homework for him or her. In mathematics particularly, there are some practices we recommend in giving support at home, and some practices that are best avoided. Here are the DOs and DON'Ts:

The DOs:

- Use opportunities to let them see Math everywhere: Hour, calendar, bigger, smaller, more, less than, change, recipes, classify and measure objects.
- Count forwards and back (rhythm), skip count.
- Play games - especially dice/domino patterns.
- Be patient. Let him/her think!
- Give them a proper place to do the homework.
- When your child asks for help, provide guidance, not answers.
- You may assist/check their homework assignment, but do not feel like it has to come back perfect and all correct. Allow your child to make mistakes and bring doubts back to the classroom.
- Try to be aware of how your child is being taught Math and don't teach strategies or shortcuts that conflict with the approach the teacher is using. Check in with the teacher and ask what you can do to help.
- Ask your child to justify a step in a problem (let them try to find a mistake) or explain their homework to you.

The DON'Ts

- Don't answer for your child. Be patient. Let him/her think!
- Don't teach him something new at the abstract level. If they can't do a challenge, let them bring the question back to class.
- Don't practice operations by repetition, giving more exercises than defined by the school.
- Don't enroll the child in methods which are based on behavioral principles and training.
- Don't show anxiety or frustration with the homework assignment. Reassure your child and send a note to the teacher if necessary.

If your child needs support at home

Don't be afraid to reach out to your child's teacher and ask how you can support your child at home. Make sure the support given is in accordance to what he or she needs support in. The best way to start supporting your child is listening to the teacher's suggestions of activities or games you can play at home with your child that will help him or her develop math skills.



There are also many resources online you might use to support your child. These include video lessons, practice exercises, and games. Ask your child’s teacher for some suggestions. The school subscribes to two websites that have many practice problems and activities for your child:

IXL (for grades PreK to 9) – www.ixl.com/signin/nations

Mathletics (Grades 1 to 5) - <http://www.mathletics.com>

If your child wants enrichment at home

Children learn in different ways and at different paces. Our curriculum covers the essential concepts and focal points of the Common Core Math Standards, but there is always room to deepen children’s thinking or extend their knowledge if they show they are ready. Make sure to check with your child’s teacher to ensure that he or she is ready for enrichment, and ask for resources he or she can use to enrich the curriculum at home.

ELEMENTARY SCHOOL

Mathematics experiences in elementary school concentrate on number sense, numbers and operations, and algebraic thinking, which start with whole numbers and grow to fractions and decimals. Students also work with measurement, which include working with time, money, length, mass, perimeter, area, volume, and angles (a bigger emphasis is given to the metric system versus the US standard system of measurement). Geometry and spatial sense are also part of the curriculum, and include working with two and three-dimensional shapes and their properties, which gets a more comprehensive focus in middle school. Data topics (graphs, charts, tables) are integrated within the other content while devoting more learning time to numbers and operations.

Grade 2

In grade two, students extend their understanding of place value to the hundreds place. They use this place value understanding to solve word problems, including those involving length and other units of measure. Students continue to work on their addition and subtraction skills, quickly and accurately adding and subtracting numbers up through 20 and work with numbers up through 100. They also build a foundation for understanding fractions by working with shapes. Activities in these areas include:

- Quickly and accurately adding numbers together that total up to 20 or less or subtracting from numbers up through 20
- Solving one- or two-step word problems by adding or subtracting numbers up through 100
- Comparing two-digit numbers using the symbols $>$ (more than), $=$ (equal to), and $<$ (less than)
- Understanding what the different digits mean in a three-digit number
- Adding and subtracting three digit numbers
- Measuring lengths of objects in standard units such as inches and centimeters
- Solving addition and subtraction word problems involving length
- Solving problems involving money
- Dividing circles and rectangles into halves, thirds, or fourths
- Solving addition, subtraction, and comparison word problems using information presented in a bar graph
- Writing equations to represent addition of equal numbers (Note: An equation is a mathematical statement that uses numbers and symbols, such as $3 + 3 = 6$.)

A Sample of What Your Child Will Be Working on in Grade 2

- Solving addition and subtraction word problems with one or two steps (e.g., a “one-step” problem would be: “Lucy has 23 fewer apples than Julie. Julie has 47 apples. How many apples does Lucy have?”)
- Quickly and accurately adding with a sum of 20 or less (for example, $11 + 8$); quickly and accurately subtracting from a number 20 or less (for example, $16 - 9$); and knowing all sums of one-digit numbers from memory by the end of



the year

- Understanding what the digits mean in three-digit numbers (place value)
- Finding one more/one less, ten more/ten less, or 100 more/100 less than any number up to 1,000
- Using understanding of place value to add and subtract three-digit numbers (for example, $811 - 367$); adding and subtracting two-digit numbers quickly and accurately (for example, $77 - 28$)
- Measuring length in standard units
- Solving addition and subtraction word problems involving length (for example, "The pen is 2 cm longer than the pencil. If the pencil is 7 cm long, how long is the pen?")