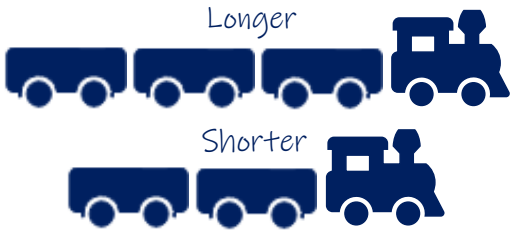
WE'RE ALL IN QUIRE FORM SPIRE

Family Math Newsletter

Kindergarten

We are learning to compare the lengths of objects by identifying which is longer, shorter, taller, or higher. We are also learning to measure lengths using everyday objects such as blocks or paperclips.

At home, have your child compare the length of two toys. You can also get one toy and ask them to find a toy that is longer, shorter, taller, or higher.



First, Third, & Fourth Grade

We are learning how to add within 100 (Grade 1), within 1000 (Grade 3), and with decimals to the hundredths (Grade 4) using multiple strategies such as Count Up/Back, Make a 10, Compensation, Doubles/Near Doubles, Think Addition (for subtraction), and Partial Sums. Page 5 of this newsletter has an overview of the strategies.

Ask your child how they solve an addition or subtraction problem and have them teach you their strategies.

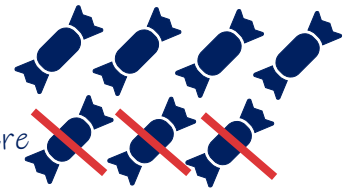
Second Grade

We are learning to explain if an equation involving addition or subtraction to 100 is true and determine the unknown in an equation.

Everyday scenarios are great times to ask your child about true or false equations. For example, you could say, "Here are 7 cookies, if I eat 3, will I have 5 cookies left? How do you know?"

$7 - 3 = 5$

This equation is false. There would be 4 candies left.



Basic Fact Automaticity

For basic facts, automaticity, or the direct recall of these facts, is woven into the curriculum by first deriving these facts, then using them to become procedurally reliable or fluent, and finally recalling them automatically.

To help your child with their basic addition and subtraction facts to 20 (Grade 2) as well as basic multiplication and division facts to 12 x 12 (Grade 4), we encourage you to play games with your child that increase the frequency that they engage with these problems. Games such as two-card war or roll the highest value are great ways to practice basic facts in a fun way without the pressure of timed assessments.

Two-card war: Both players flip 2 cards at a time and then add, subtract, or multiply their cards. The highest value keeps the flipped cards.

Roll the highest value: Both players roll two dice and add, subtract, or multiply the values. The highest value gets a point.

School District of Osceola County

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Fifth & Sixth Grade

We are applying our understanding of multiplying and dividing whole numbers to learn how to multiply and divide decimals to the thousandths (Grade 5) and fractions and mixed numbers (Grade 6). Strategies include partial products, compensation, halve and double, and the US Standard Algorithm. Page 4 of this newsletter has an overview of the strategies.

Ask your child how they solve a multiplication or division problem and have them teach you their strategies.

Seventh Grade

We are combining our knowledge of whole number, fraction, and decimal computation (addition, subtraction, multiplication, and division) with our knowledge of integers to add, subtract, multiply, and divide rational numbers. Rational numbers are both positive and negative integers, fractions, and decimals. Pages 4 and 5 of this newsletter have an overview of the strategies.

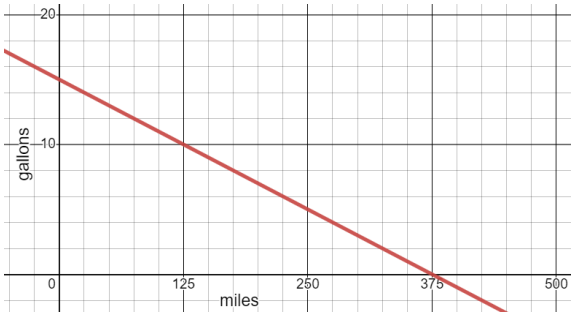
Ask your child how they solve a problem and have them teach you their strategies.

Eighth Grade

We are learning about how to graph linear functions and interpret key features, including the slope and y-intercept, in the context of a real-world problem.

At home, engage your child in conversations around linear function problems. For example, "If your gas tank holds 15 gallons of gas and you get 25 miles per gallon, how many miles can you drive before you run out of gas?" Another example would be "I ran 7 miles on Sunday and run 2 miles each day. How many miles will I have cumulatively ran this week?"

The y-intercept of 15 represents the amount of gas I start with. The x-intercept of 375 represents the number of miles I can drive before running out of gas. The slope of $-\frac{1}{25}$ means that for every 25 miles I drive, I use 1 gallon of gas.



What do I need to know about my child enrolling in a high school credit math course (Algebra 1 & Geometry) in middle school?

☑ 4 high school math credits are needed for graduation. Your child can earn some of these while in middle school.

☑ If your child passes the EOC, they will meet the math concordant needed for graduation while in middle school.

⚠ The grade your child receives in these courses while in middle school, counts toward their high school GPA.

FAQ

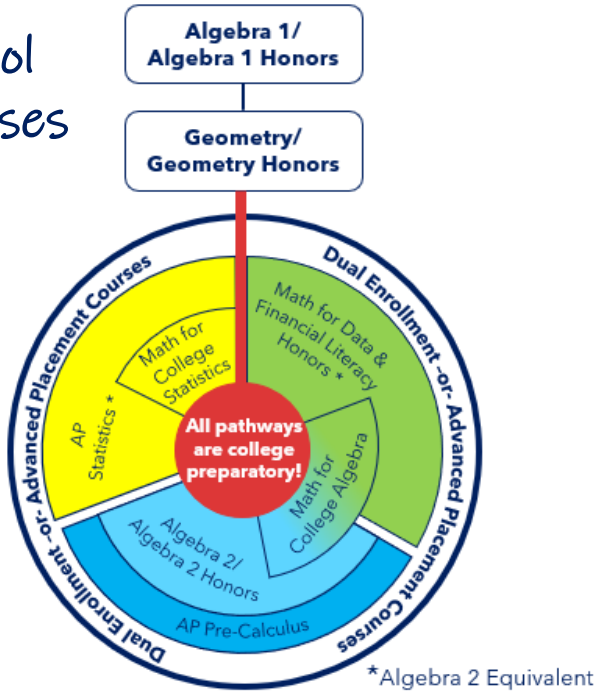
If my child does not take Algebra 1 and/or Geometry in middle school, will they be behind and able to graduation on time?

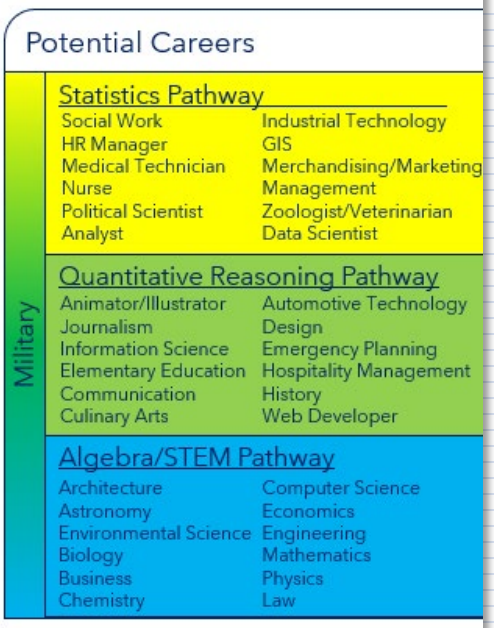
Students who wait until 9th grade to take Algebra 1 will still have plenty of time to earn all 4 high school credits and their concordant. Additionally, they will have two years to experience upper-level math courses in high school.

How can I help my student be successful in these courses or prepare them to take these courses?

Encourage your child to use Aleks, our district computer adaptive math program, at home. This program targets the unique needs of your child. Also, work with your child to build good work habits, set goals, and manage their time.

High School Credit Courses





High School Math FAQ

What are the high school graduation requirements for a Standard Diploma related to math?

- 4 Mathematics Credits – Algebra 1 and Geometry are Required
- Pass the Algebra 1 EOC State Assessment or a Comparative Score
  - Comparative Scores include: Passing Geometry EOC, 430 on PSAT/NMSQT Math, 420 on SAT Math, or 16 on ACT Math
- Overall 2.0 GPA (2.5 GPA for Florida State University System)

What are the high school graduation requirements for a Scholar Diploma related to math?

- Meet Requirements for a Standard Diploma, plus:
  - Pass the Geometry EOC
  - Earn 1 credit in Algebra 2 or an Algebra 2 equivalent course (MDFL, IB, AP, or DE)
  - Earn 1 credit in AP Statistics or an equally rigorous course (Pre-Calc, Calc)

What is the difference between Regular and Honors for Algebra 1, Geometry, and Algebra 2?

For the most part, Regular and Honors address the same benchmarks. The Honors level however includes additional benchmarks and therefore the course goes at a faster pace.

Do the 3 Math for College Courses count as college credits like Dual Enrollment?

No, these courses are high school level courses that are aligned to courses and pathways that students may take in college. The purpose of these courses is to expose student to mathematics related to a field they may choose.

What is the difference between Advanced Placement and Dual Enrollment?

Advanced Placement are high school courses that teach material ordinarily intended for college students. They may receive college credit if they pass the AP test. For Dual Enrollment, students complete an application to take college credit classes while in high school.

How can I help my child pick a math class that will be meaningful for their career path?

Start having conversations about what they want to do. Use Xello, on our district platform, and the graphic above to explore careers and the mathematics suggested for this career.

My child took Algebra 1 in middle school. Does that mean they can "take a year off" of math?

Yes, however, we recommend students enroll in a math course each year of high school to maintain their mathematical understanding.

Strategies for Addition & Subtraction

Make a Ten

In Make a Ten for addition, you take from one addend (number in an addition problem) and give it to the other addend to make it ten.

28 + 15
(2)
30 + 13 = 43
So, 28 + 15 = 43

2.83 + 1.59
(0.17)
3 + 1.42 = 4.42
So, 2.83 + 1.59 = 4.42

In Make a Ten for subtraction, you decompose the number being subtracted so that it will make a ten when you subtract one part and then subtract the rest.

94 – 17
94 – (14 + 3)
94 – 14 = 80
80 – 3 = 77
So, 94 – 17 =77

Count Up/Back

In Count Up or Count Back, you start at the first number in the problem and then count up (addition) or (back) with the second number in the problem.

57 + 24 = 81
57, 67, 77, 78, 79, 80, 81
(10) (10) (1) (1) (1) (1)

5.72 – 1.31 = 4.41
5.72, 4.72, 4.62, 4.52, 4.42, 4.41
(-1) (-0.1) (-0.1) (-0.1) (-0.01)

Doubles/Near Doubles

In Doubles, you know what the number plus itself is.

6 + 6 = 12

In Near Doubles, you think of the two addends as the double problem it is close to and then adjust at the end.

7 + 8
7 + 7 = 14
14 + 1 = 15
So, 7 + 8 = 15

Compensation

In compensation for addition, you think of one of the addends as a friendly number and then adjust at the end to compensate for the change at the beginning.

39 + 27
40 + 27 = 67
40 was 1 more than 39 and 67 is one more than 66 so 39 + 47 = 66.

3.95 + 2.76
4 + 2.76 = 6.76
4 was 0.05 more than 3.95 and 6.76 is 0.05 more than 6.72 so 3.95 + 2.76 = 6.62.

In compensation for subtraction you adjust both numbers by the same amount to make the first added a friendly number (10 or 20) and then subtract.

84 – 23
(-3) (-3)
81 – 20 = 61

23.76 – 2.92
(+0.08) (+0.08)
23.84 – 3 = 20.84

Partial Sums/Differences

In Partial Sums, you break apart each number by place value, add the pieces, and then put them back together.

43 = 40 + 3
+ 39 = 30 + 9
70 + 12 = 82

9.85 = 9 + 0.8 + 0.05
- 3.2 = 3 + 0.2
6 + 0.6 + 0.05 = 6.65

Think Addition (Subtraction Only)

In Think Addition, you think of what would be missing if it was an addition problem.

18 – 12

12 + ? = 18
12 + 6 = 18
18 – 12 = 6

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OSCEOLA MATH

Strategies for Multiplication & Division

Halve to Simplify

In halve to simplify, both numbers in the problem are halved to maintain equivalency in the division problem but make the numbers smaller to reason with.

Halve: 2.16 ÷ 2.4 = 9
Halve: 1.08 ÷ 1.2
Third: 0.54 ÷ 0.6
0.18 ÷ 0.2 = 0.9

Compensation

In compensation, one of the factors (a number in a multiplication problem) is changed to a friendly number. The product is found and then you compensate for the change.

2.2 x 4.3
(2 + 0.2) x 4.3

2 x 4.3 = 8.6
8.6 + 0.43 = 9.03
9.03 + 0.43 = 9.46

Halve and Double

In halve and double, one of the factors (numbers in a multiplication problem) is halved and the other factor is doubled. Usually, this strategy is used to make one of the factors into a friendly number to multiply or to change the problem into a known multiplication fact. This strategy can also be used as third and triple.

Halve / Double: 1.6 x 2.5 → 0.8 x 5

0.8 x 5 = 40

Partial Quotients

In partial quotients, easy to find groups are removed from the dividend (number being divided) until there are no more groups.

75.2 ÷ 1.6 = 42

1.6 | 75.2

-16 (10 x 1.6)
59.2
-32 (20 x 1.6)
27.2
-16 (10 x 1.6)
11.2
-8 (5 x 1.6)
3.2
-3.2 (2 x 1.6)
0

10 + 20 + 10 + 5 + 2 = 42

Partial Products

In partial products, one, or both of the factors (numbers in a multiplication problem) are broken up into smaller chunks that are easier to multiply. For, example, 27 might be broken into 25 and 2 or 20 and 7. These smaller chunks are multiplied together. These are the partial products which are then added together to find the final answer. Partial products can be represented as a list of multiplication problems (left) or using an area model (right).

2.7 x 3.2
(2 + 0.7) (3 + 0.2)

2 x 3 = 6
2 x 0.2 = 0.4
0.7 x 3 = 2.1
0.7 x 0.2 = 0.14

Product = 8.64

2 + 0.7

	3	0.2
2	6	0.4
0.7	2.1	0.14

6.00
0.40
2.10
+0.14
8.64

US Standard Algorithm

This is the traditional method for multi-digit multiplication or division in the US. While these are reliable strategies, the other strategies on this page are also useful strategies. Therefore, these strategies are taught to students with the other strategies and students engage in learning that asks them to choose a strategy for a given problem and justify their reasoning.

```
  1
 5.2
x1.9
 468
 520
9.88
```

```
      1.6
12 | 19.2
    -12
     72
    -72
      0
```

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