

Fluency Expectations

An important shift related to the Common Core Learning Standards for Math is the expectation that students develop mathematical fluency. Students are expected to have speed and accuracy with simple calculations. One of the ways you can support your child is by helping him or her develop fact fluency.

The fluency expectations for each grade level and some online resources are included below.

Grade	Required Fluency
K	Add/subtract within 5
1	Add/subtract within 10
2	Add/subtract within 20 Add/subtract within 100 (pencil and paper)
3	Multiply/divide within 100 Add/subtract within 1000 (pencil and paper)
4	Add/subtract within 1,000,000 (pencil and paper)
5	Multi-digit multiplication (pencil and paper)

Grade K

By the end of Kindergarten, students will have memorized all addition facts with sums to 5.

0+0 1+0 2+0 3+0 4+0 5+0
0+1 1+1 2+1 3+1 4+1
0+2 1+2 2+2 3+2
0+3 1+3 2+3
0+4 1+4
0+5

By the end of Kindergarten, students will have memorized all addition facts with minuends to 5.

5-0 4-0 3-0 2-0 1-0 0-0
5-1 4-1 3-1 2-1 1-1
5-2 4-2 3-2 2-2
5-3 4-3 3-3
5-4 4-4
5-5

Grade 1

By the end of grade 1, students will have memorized all addition facts with sums to 10.

0+0	1+0	2+0	3+0	4+0	5+0	6+0	7+0	8+0	9+0	10+0
0+1	1+1	2+1	3+1	4+1	5+1	6+1	7+1	8+1	9+1	
0+2	1+2	2+2	3+2	4+2	5+2	6+2	7+2	8+2		
0+3	1+3	2+3	3+3	4+3	5+3	6+3	7+3			
0+4	1+4	2+4	3+4	4+4	5+4	6+4				
0+5	1+5	2+5	3+5	4+5	5+5					
0+6	1+6	2+6	3+6	4+6						
0+7	1+7	2+7	3+7							
0+8	1+8	2+8								
0+9	1+9									
0+10										

By the end of grade 1, students will have memorized all addition facts with minuends to 10.

10-0	9-0	8-0	7-0	6-0	5-0	4-0	3-0	2-0	1-0	0-0
10-1	9-1	8-1	7-1	6-1	5-1	4-1	3-1	2-1	1-1	
10-2	9-2	8-2	7-2	6-2	5-2	4-2	3-2	2-2		
10-3	9-3	8-3	7-3	6-3	5-3	4-3	3-3			
10-4	9-4	8-4	7-4	6-4	5-4	4-4				
10-5	9-5	8-5	7-5	6-5	5-5					
10-6	9-6	8-6	7-6	6-6						
10-7	9-7	8-7	7-7							
10-8	9-8	8-8								
10-9	9-9									
10-10										

Grade 2

By the end of grade 2, students will have memorized all addition facts with sums of two one-digit numbers.

0+0	1+0	2+0	3+0	4+0	5+0	6+0	7+0	8+0	9+0
0+1	1+1	2+1	3+1	4+1	5+1	6+1	7+1	8+1	9+1
0+2	1+2	2+2	3+2	4+2	5+2	6+2	7+2	8+2	9+2
0+3	1+3	2+3	3+3	4+3	5+3	6+3	7+3	8+3	9+3
0+4	1+4	2+4	3+4	4+4	5+4	6+4	7+4	8+4	9+4
0+5	1+5	2+5	3+5	4+5	5+5	6+5	7+5	8+5	9+5
0+6	1+6	2+6	3+6	4+6	5+6	6+6	7+6	8+6	9+6
0+7	1+7	2+7	3+7	4+7	5+7	6+7	7+7	8+7	9+7
0+8	1+8	2+8	3+8	4+8	5+8	6+8	7+8	8+8	9+8
0+9	1+9	2+9	3+9	4+9	5+9	6+9	7+9	8+9	9+9

By the end of grade 2, students will have memorized all subtraction facts with minuends less than 20 with differences less than 10.

							11-2
						12-3	11-3
					13-4	12-4	11-4
				14-5	13-5	12-5	11-5
		15-6	14-6	13-6	12-6	11-6	
	16-7	15-7	14-7	13-7	12-7	11-7	
17-8	16-8	15-8	14-8	13-8	12-8	11-8	
18-9	17-9	16-9	15-9	14-9	13-9	12-9	11-9

Grade 3-5

By the end of grade 3, students will have memorized all products of two one-digit numbers.

0x0	1x0	2x0	3x0	4x0	5x0	6x0	7x0	8x0	9x0
0x1	1x1	2x1	3x1	4x1	5x1	6x1	7x1	8x1	9x1
0x2	1x2	2x2	3x2	4x2	5x2	6x2	7x2	8x2	9x2
0x3	1x3	2x3	3x3	4x3	5x3	6x3	7x3	8x3	9x3
0x4	1x4	2x4	3x4	4x4	5x4	6x4	7x4	8x4	9x4
0x5	1x5	2x5	3x5	4x5	5x5	6x5	7x5	8x5	9x5
0x6	1x6	2x6	3x6	4x6	5x6	6x6	7x6	8x6	9x6
0x7	1x7	2x7	3x7	4x7	5x7	6x7	7x7	8x7	9x7
0x8	1x8	2x8	3x8	4x8	5x8	6x8	7x8	8x8	9x8
0x9	1x9	2x9	3x9	4x9	5x9	6x9	7x9	8x9	9x9

By the end of grade 3, students will have memorized all quotients associated with the above products.

0÷1	0÷2	0÷3	0÷4	0÷5	0÷6	0÷7	0÷8	0÷9
1÷1	2÷2	3÷3	4÷4	5÷5	6÷6	7÷7	8÷8	9÷9
2÷1	4÷2	6÷3	8÷4	10÷5	12÷6	14÷7	16÷8	18÷9
3÷1	6÷2	9÷3	12÷4	15÷5	18÷6	21÷7	24÷8	27÷9
4÷1	8÷2	12÷3	16÷4	20÷5	24÷6	28÷7	32÷8	36÷9
5÷1	10÷2	15÷3	20÷4	25÷5	30÷6	35÷7	40÷8	45÷9
6÷1	12÷2	18÷3	24÷4	30÷5	36÷6	42÷7	48÷8	54÷9
7÷1	14÷2	21÷3	28÷4	35÷5	42÷6	49÷7	56÷8	63÷9
8÷1	16÷2	24÷3	32÷4	40÷5	49÷6	56÷7	64÷8	72÷9
9÷1	18÷2	27÷3	36÷4	45÷5	54÷6	63÷7	72÷8	81÷9
10÷1	20÷2	30÷3	40÷4	50÷4	60÷6	70÷7	80÷8	90÷9

Students benefit from repeated practice to develop fact fluency. In addition, it is useful for them to develop strategies to support their fluency development. The websites and apps below provide opportunities for practice in addition to strategies.

Facts Fluency Websites

Developing Fact Fluency

<http://www2.carrollk12.org/instruction/elemeurric/math/tbasicfacts.HTM>

This website contains information about fluency and resources to help students develop their fluency.

Math Facts Café

<http://www.mathfactcafe.com/>

This website includes printable math worksheets for elementary school and home use. This includes generators for math drills, flashcards, counting, time, money, and more.

Soft Schools

http://www.softschools.com/math/worksheets/multiplication_worksheets.jsp

SoftSchools.com provides free math worksheets and games. Worksheets and games are organized by grades and topics. These printable math and phonics worksheets are auto generated.

Math Drills

<http://www.mathdrill.com/index.php3>

This website provides online fact tests in which math problems are organized into 86 levels ranging from simple ordering of numbers to addition and subtraction, multiplication, division, fractions, time, algebra , geometry , etc.

Math Magician Games

<http://www.oswego.org/ocsd-web/games/Mathmagician/cathymath.html>

Math Magician provides online facts challenges.

Facts Fluency Apps

Fast Facts by StudySmart.....drills/games

Mathris by DivMob.....a game like *Tetris* using addition, subtraction, multiplication, and division skills

Fractions by Braining Camp.....primarily for grades four and five

Math Bingo by ABCya.com