

# Computation and the Common Core State Standards SMCPS

*In grades K—5, the focus is on addition, subtraction, multiplication and division of whole numbers, fractions and decimals, with a balance of concepts, skills, and problem solving.*

*Arithmetic is viewed as an important set of skills and also as a thinking subject that, done thoughtfully prepares students for algebra.*

*Measurement and geometry develop alongside number and operations and are tied specifically to arithmetic along the way.*

*\*PARCC, Draft Model Framework, pg.4*

## Fact Fluency Practice

**Practice fact fluency at home by playing games, using strategies and developing clues to help remember combinations.**

## Overview

*There is a world of difference between a student who can perform an algorithm for mult-digit multiplication and a student who can explain why the algorithm works. Mathematical understanding and procedural skill are equally important, and both are accessible using mathematical tasks of sufficient richness. (from CCSS p. 4, the example was changed to match an elementary school example.)*

## Summary of Grade Level Expectations in the Common Core\*

### PreK

- Explore addition and subtraction with objects, fingers, mental images, drawings, sounds, acting out situations or verbal conversations

### Kindergarten

- Solve addition and subtraction word problems, and add and subtract within 10 by using objects or drawings to represent the problems.
- Compose and decompose numbers from 11 to 19 into ten ones and some further ones by using objects...

### Grade 1

- Add within 100 using concrete models or drawings and strategies based on place value, properties of operations and the relationship between addition and subtraction.
- Know addition facts fluently using strategies such as doubles, making ten, etc.

### Grade 2

- Fluently add and subtract within 100 using strategies based on place value, the properties of operations and the relationship between addition and subtraction.
- Add and subtract within 1000 using concrete models or drawings and strategies based on place value... Understand that in adding or subtracting three digit numbers, one adds or subtracts hundreds from hundreds, tens from tens and ones from ones and sometimes it is necessary to compose or decompose tens or hundreds.
- Fluently add and subtract within 20 using mental strategies. **By the end of grade 2, know from memory all sums of two one digit numbers.**

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## Summary of Benchmarks

### Grade 2:

- By the end of the year know from memory all addition facts.

### Grade 3:

- By the end of the year know from memory all multiplication facts (through  $10 \times 10$ ).

### Grade 4:

- Fluently add and subtract multi-digit whole numbers using the standard algorithm.

### Grade 5:

- Fluently multiply multi-digit numbers using the standard algorithm.

### Grade 6:

- Fluently divide multi-digit numbers using the standard algorithm.

## Summary of Grade Level Expectations in the Common Core\* continued.

### Grade 3

- Fluently add and subtract within 1000 using strategies or algorithms based on place value, the properties of operations, and/or the relationship between addition and subtraction.
- Multiply one digit whole numbers by multiples of 10 using strategies based on place value and the properties of operations.
- Fluently multiply and divide within 100 using strategies such as the relationship between addition and subtraction, or the properties of operations. **By the end of grade 3, know from memory all products of two one-digit numbers.**

### Grade 4

- **Fluently add and subtract multi-digit whole numbers using the standard algorithm**
- Multiply multi-digit whole numbers using strategies based on place value and the properties of operations. Illustrate and explain the calculations using equations, rectangular arrays and/or area models.
- Find whole number quotients and remainders using with up to 4 digit dividends and one digit divisors. using strategies based on place value, the the properties of operations, and/or the inverse relationship between multiplication and division. Illustrate and explain the calculations by using equations, rectangular arrays, and/or the area model.

### Grade 5

- **Fluently multiply multi-digit whole numbers using the standard algorithm.**
- Find whole number quotients of multi-digit whole numbers using strategies based on place value, the the properties of operations, and/or the inverse relationship between multiplication and division. Illustrate and explain the calculations by using equations, rectangular arrays, and/or the area model.
- Add, subtract, multiply and divide decimals to hundredths using concrete models, and/or drawings and strategies based on place value, the the properties of operations, and/or the inverse relationship between multiplication and division. Illustrate and explain the calculations by using equations, rectangular arrays, and/or the area model.

### Questions to Ask Your Child When They Are Doing Their Homework:

Do you think your answer will be greater or less than \_\_\_\_\_? Why? ~ Estimate the answer. Justify your estimate by referencing the problem ~ Can you draw/model the action of the problem? ~ Can you think about the problem with smaller numbers? ~ Could you explain what you have already done? ~ Can you prove that to me? ~ Is there another way you could do that? ~ Can you convince me that it is true? ~ Does your answer match with your original estimate? ~ Do you notice any patterns that could make your strategy more efficient?