



Grade 5 Unit 1

Order of Operations and Whole Numbers

Volume 1 Issue 1

References

Helpful Links:

<https://learnzillion.com/lessons/461-use-parentheses-brackets-or-braces-in-numerical-expressions>

<http://illuminations.nctm.org/Lesson.aspx?id=2583>

<http://www.k-5mathteachingresources.com/5th-grade-number-activities.html>

<http://www.estimated180.com/days.html>

<https://www.illustrativemathematics.org/>

Math Grade 5 Textbook

Connection:

Ch. 1, Lesson 1
Ch. 2, Lessons 4, 6 - 10
Ch. 3, Lessons 1 – 13
Ch. 4, Lessons 1- 6
Ch. 7, lesson 1

Textbook Online:

<http://connected.mcgraw-hill.com/connected/login.do>

Ask your teacher for the online passcode.

Dear Parents,

Welcome to the new school year! We are eager to work with you and your students as we learn new mathematical concepts. Your student's math class is calling for students to be actively engaged in doing math in order to learn math. In the classroom, students will frequently work on tasks and activities to discover and apply mathematical thinking. Students will be expected to explain or justify their answers and to write clearly and properly. Your students will receive a consumable My Math textbook and online access from their teacher.

Concepts Students will Use and Understand

- Solve problems by representing mathematical relationships between quantities using mathematical expressions and equations.
- Use the four whole number operations efficiently, including the application of order of operations.
- Write, evaluate, and interpret mathematical expressions with and without using symbols.
- Apply strategies for multiplying a 2- or 3-digit number by a 2-digit number.
- Develop paper-and-pencil multiplication algorithms (not limited to the traditional algorithm) for 3- or 4-digit number multiplied by a 2- or 3-digit number.
- Apply paper-and-pencil strategies for division (not the standard algorithm)
- Solve problems involving multiplication and division.
- Investigate the effects of multiplying whole numbers by powers of 10.
- **Fluent** use of standard algorithm is a 6th grade standard

Vocabulary

Exponent: Showing the number of times the base number is multiplied by itself

Expression: Numbers and symbols with no equal sign

Quotient: Answer to a division problem

Fluently is accurately and efficiently.

Try <http://intermath.coe.uga.edu/dictionary/homepg.asp> or <http://www.amathsdictionaryforkids.com/> for further examples.

Symbols

- + addition
- subtraction
- × multiplication
- ÷ division
- () parenthesis
- { } braces
- [] brackets

Example 1

$$2.5 \times 10^3 = 2.5 \times (10 \times 10 \times 10) = 2.5 \times 1,000 = 2,500$$

Example 2

$$350 \div 10 = 35$$

$$350 /_{10} = 35$$

$$(350 \times \frac{1}{10}) = 35$$

Example 3

What numbers can you make with 1, 2, 3, and 4? Using the operations of addition, subtraction, and multiplication, we can make many different numbers. For example, we can write 13 as

$$13 = (3 \times 4) + 1.$$

You can use parentheses as many times as you like and each of the numbers 1, 2, 3, and 4 can be used *at most* once.

- a. Find two different ways to make 9.
- b. Find two different ways to make 7.
- c. Find two different ways to make 11.
- d. Can you make 26?

- a. Using the fact that $9 = 3 \times 3$ we have $9 = 3 \times (4 - 1)$ Also, using the fact that $9 = 8 + 1$ we have $9 = (4 \times 2) + 1$
- b. Using the fact that $9 = 8 + 1$ we have $9 = (4 \times 2) - 1$ Also, using the fact that $7 - 8 - 1$ we have $7 = (4 \times 2) - 1$ Or, avoiding multiplication, we have $7 = 4 + 2 + 1$
- c. Using the fact that $11 = 8 + 3$ we have $11 = (4 \times 2) + 3$ Also, using the fact that $11 = 12 - 1$ we have $11 = (4 \times 3) - 1$
- d. We have $26 = 2 \times 13$ so if we can write 13 using 1, 3 and 4 we can get 26 by doubling. We have $3 \times 4 = 12$ and $12 + 1 = 13$. Putting all of this together gives. $\{(3 \times 4) + 1\}$.

Activities at Home

- Make up numbers, roll numbers with dice, or find numbers (on labels) and compare them.
- Find numbers and write them in expanded form.
- Draw pictures and make models of numbers.
- Practice addition, subtraction, multiplication and division facts.