



# 4<sup>th</sup> Grade Math

## Curriculum Sample

A Grade Ahead's rigorous, year-round enrichment program will challenge your child to a higher academic standard. Our math material consists of two components: **numerical drills** and **curriculum**. Numerical drills are quick exercises that will improve your child's speed and accuracy in computational skills while our monthly curriculum includes mathematical topics that your child will see in school. Both numerical drills and curriculum work together to ensure a complete understanding and mastery of each topic.

The numerical drills and curriculum will each have an in-depth lesson (which we call Examples), as well as homework, and answers. In these next pages, we offer a closer look at what our examples, homework, and answers offer as well as a specific sample of both numerical drills and curriculum.

**Examples - Grade 4**

### Rounding Numbers

Note: Students must be familiar with rounding up to the hundreds by 3<sup>rd</sup> grade.

**A. Introduction**

Rounding makes numbers easier to work with. Rounded numbers are only approximate. An exact answer generally cannot be obtained using rounded numbers. Use rounding when the solution needs to be close but does not have to be exact.

Rounding changes a number to another number that is close and ends in zeroes. Knowledge of place value is necessary to be able to round.

When rounding numbers, students should first determine what multiple of 10, 100, 1000, etc. the number is between. For example, when rounding 63 to the nearest 10, determine that 63 is between 60 and 70. When rounding 529 to the nearest 100, determine that 529 is between 500 and 600. Using a number line will help visualize this.

**Student Goals:**

- ✓ I will be able to round a number to the
  - a) tens place
  - b) hundreds place
  - c) thousands place
- ✓ I will be able to round money.
- ✓ I will be able to use rounding in word problems.

**A B C**

In math, a **multiple** of a number can be divided by it with no remainder. 50 is a multiple of 10 because 50 can be divided by 10 with no remainder.

The numbers 1-4 would round to the lower multiple of 10.      The numbers 5-9 would round to the higher multiple of 10.

0 1 2 3 4 5 6 7 8 9 10

**Teaching Tip:** Use the number line concept to explain rounding. There will be a tick mark in the ones place after rounding, so the numbers on the number line are 10, 20, 30, 40, 50, 60, 70, 80, 90, 100, 200, 300, 400, 500, 600, 700, 800, 900, 1000, 2000, 3000, etc.

## Student Goals

Student goals are listed at the top right of the Examples each week. These are topics that your child should understand by the end of the week.



Lesson pages are titled "Examples - Grade 4," answer pages are titled "Answers - Grade 4," and homework pages are simply titled "Grade - 4."

Examples - Grade 4

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**ABC**

In math, a **multiple** of a number can be divided by it with no remainder. 50 is a multiple of 10 because 50 can be divided by 10 with no remainder.

**Teaching Tip:** Use the number line concept to explain rounding. There will always be a 0 in the ones place after rounding, so the numbers on the number line will be 10, 20, 30 etc OR 100, 200, 300 OR 1000, 2000, 3000 etc. For example, use the number line to round 246 to the hundreds. The word "hundreds" tells the students that the number line will have 100, 200, 300 etc. (i.e. the numbers are in multiples of 100). Ask the students which two numbers 246 lies between. It will be between 200 and 300. Use the rule - 4 or lower, 5 or higher - for the tens digit, to show whether 246 is closer to 200 or 300. Since tens place is 4, we round down i.e. the answer will be 200.

## ABC Word Boxes

These word boxes define terms used within the lesson that your child may not know.

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## Teaching Tip

Teaching tips are suggestions to help you or your teacher present the topic to your child. These could include topics to review first or even an activity to do with your child.



Each day's homework usually takes about 30 minutes to complete.

Examples - Grade 4

**Example:** Round 36 to the nearest 10.  
36 is between 30 and 40. 36 is closer to 40.

**Example:** Round 213 to the nearest hundred.  
213 is between 200 and 300. 213 is closer to 200.

**Example:** Round 4,765 to the nearest 1,000.  
4,765 is between 4,000 and 5,000. 4,765 is closer to 5,000.

**B. Rounding to various place values**

Often it is necessary to round to a place value that is not the highest place value in the number.

**Rounding to the nearest ten:**

**Example:** Round 463 to the nearest 10.

**Example:** Round 463 to the nearest 10. Since rounding needs to happen to the nearest 10, underline the tens place. Look at the ones value digit (to the right). 3 is in the ones place. Since 3 is less than 5, so the 6 in the tens place remains the same. The ones digit changes to zero.

## Examples

To illustrate the topic, examples are provided to you and your child. These examples help demonstrate how to solve the problem or figure out the answer.

Grade - 4

Start time: \_\_\_\_\_ End time: \_\_\_\_\_  
Score: \_\_\_\_\_

**Round to the nearest ten.**

1. 23 _____	2. 38 _____	3. 58 _____	4. 41 _____
5. 65 _____	6. 32 _____	7. 25 _____	8. 94 _____

**Round to the nearest hundred.**

9. 818 _____	10. 165 _____	11. 378 _____	12. 862 _____
13. 450 _____	14. 122 _____	15. 611 _____	16. 103 _____

**Round to the nearest thousand.**

17. 8,351 _____	18. 1,695 _____	19. 3,562 _____	20. 4,110 _____
21. 7,213 _____	22. 5,555 _____	23. 3,910 _____	24. 9,562 _____

**Where is the number rounded?**

25. 645 → 600 _____	26. 12,945 → 13,000 _____
27. 4,091 → 4,000 _____	28. 4,091 → 4,100 _____
29. 1,236 → 1,240 _____	30. 1,098 → 1,100 _____

When rounding the number 452 to the nearest ten, which digit tells you whether to round up or down? Which digit tells you whether to round up or down? Explain.

## Homework

Each week, four days of homework are given to apply concepts from that week's lesson and reinforce the topic.

#### Answers - Grade 4

Week: 2 - Day 1	
1) 20	2) 40
3) 60	4) 40
5) 70	6) 30
7) 30	8) 60
9) 800	10) 200
11) 400	12) 600
13) 500	14) 100
15) 600	16) 100
17) 8,000	18) 2,000
19) 4,000	20) 4,000
21) 7,000	22) 6,000
23) 4,000	24) 10,000
25) hundreds	26) thousands
27) thousands	28) hundreds
29) tens	30) tens or hundreds
31) Ones digit which is 2. If the digit to the right of the place value you are rounding to is 4 or below leave the digit in the place you are rounding the same.	
32) B, D, F	33) 60 pencils $[25 + 26 + 19 = 70]$
34) 4,300 notebooks $[1,368 + 2,932 = 4,280]$	35) 1,040 fruits $[157 + 355 + 528 = 1,037]$
36) 5,700 items $[1,234 + 4,500 = 5,734]$	37) \$7.00 $[1.99 + 0.55 + 0.55 + 1.99 + 1.99 = \$7.07]$

## Answers

Answers are provided to check your child's homework. Enter the scores into the Parent Portal to track progress and note which areas may need more work.

**Simplify these fractions.**

1.  $\frac{3}{12} =$

2.  $\frac{3}{9} =$

3.  $\frac{12}{27} =$

4.  $\frac{2}{12} =$

5.  $\frac{4}{22} =$

6.  $\frac{4}{14} =$

7.  $\frac{5}{15} =$

8.  $\frac{9}{27} =$

9.  $\frac{2}{20} =$

10.  $\frac{6}{26} =$

11.  $\frac{12}{18} =$

12.  $\frac{10}{18} =$

13.  $\frac{6}{12} =$

14.  $\frac{2}{14} =$

15.  $\frac{6}{21} =$

**Divide these numbers.**

16.  $6 \overline{) 1,489}$

17.  $4 \overline{) 921}$

18.  $4 \overline{) 1,991}$

19.  $9 \overline{) 180}$

20.  $11 \overline{) 1,587}$

21.  $9 \overline{) 738}$

22.  $9 \overline{) 203}$

23.  $5 \overline{) 1,255}$

24.  $9 \overline{) 243}$

25.  $7 \overline{) 632}$

26.  $3 \overline{) 399}$

27.  $2 \overline{) 1,001}$

## Answers – Multiplication / Division / Fractions 1

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### Day: 1


- 1)  $\frac{1}{4}$
- 4)  $\frac{1}{6}$
- 7)  $\frac{1}{3}$
- 10)  $\frac{3}{13}$
- 13)  $\frac{1}{2}$
- 16) 248 R1
- 19) 20
- 22) 22 R5
- 25) 90 R2

- 2)  $\frac{1}{3}$
- 5)  $\frac{2}{11}$
- 8)  $\frac{1}{3}$
- 11)  $\frac{2}{3}$
- 14)  $\frac{1}{7}$
- 17) 230 R1
- 20) 144 R3
- 23) 251
- 26) 133

- 3)  $\frac{4}{9}$
- 6)  $\frac{2}{7}$
- 9)  $\frac{1}{10}$
- 12)  $\frac{5}{9}$
- 15)  $\frac{2}{7}$
- 18) 497 R3
- 21) 82
- 24) 27
- 27) 500 R1



**Place Value**



*Note: Until 3<sup>rd</sup> grade, students have learned place value of a 4-digit number. In 4<sup>th</sup> grade, students will learn place value for larger numbers.*

- Student Goals:**
- ✓ I will be able to determine the place value up to and including millions.
  - ✓ I will be able to write a number in standard form, word form, and expanded form.
  - ✓ I will be able to compare whole numbers using the concept of place value.

**A. Introduction**

In the number system, any number can be expressed by using ten different digits: 0, 1, 2, 3, 4, 5, 6, 7, 8, and 9. When you move to the left in a number, each place is equal to ten times the value of the place to its right.

- 10 is 10 times as large as 1.
- 100 is 10 times as large as 10.
- 1,000 is 10 times as large as 100.
- 10,000 is 10 times as large as 1,000.
- 100,000 is 10 times as large as 10,000.
- This pattern repeats.

The place value chart for larger numbers is shown below. Beginning from the right, the values of the places are: ones, tens, hundreds, thousands, ten thousands, hundred thousands, and millions. As noted above, each place value has a value 10 times greater than the place to its right.

Millions			Thousands			Ones		
Hundred Million	Ten Million	Million	Hundred Thousands	Ten thousands	Thousands	Hundreds	Tens	Ones



**Example:** How do you read the number 4,976,573 and what is the place value of the underlined digit.

Let us fill the place value chart for this number.

Millions			Thousands			Ones		
Hundred Million	Ten Million	Million	Hundred Thousands	Ten thousands	Thousands	Hundreds	Tens	Ones
		4,	9	7	6,	5	7	3

The number is read as *four million, nine hundred seventy six thousand, five hundred seventy three*. So the place value of 4 is millions and its value is 4,000,000.



Note: The value of 4 is not 4; it is determined by its place in the chart, so it is 4 million.



Note: For large numbers, a comma is used to separate every 3 digits starting from the right. This helps with better readability of the numbers.



**Teaching Tip:** Reading large numbers correctly can be tricky for students. The commas and the PV chart together can be very helpful for this. Suppose you were to read the number 401324798.

1. Start by placing commas. 401,324,798
2. Now, begin from the left most group: 401. Read this as any 3 digit number you would read i.e. four hundred one. Now add "million" to it because numbers in this group fall in the "millions" category in the PV chart. We have four hundred one million.
2. Next look at middle group: 324. Read this as any 3 digit number you would read i.e. three hundred twenty four. Now add "thousand" to it because numbers in this group fall in the "thousands" category in the PV chart. We have three hundred twenty four thousand
3. Lastly look at the last group: 798. This is read as seven hundred ninety eight.
4. Combine all the groups. Our number is four hundred one million three hundred twenty four thousand seven hundred ninety eight.



**Examples:** (a) What numbers are 7 million 3 hundred thousand forty;  
 (b) fifty-three thousand four hundred ten.

(a) It is sometimes easier to make the place value chart and then come up with the number. Put a 0 for places where a value is missing.

Millions			Thousands			Ones		
Hundred Million	Ten Million	Million	Hundred Thousands	Ten thousands	Thousands	Hundreds	Tens	Ones
		7,	3	0	0,	0	4	0

Hence, the number is 7,300,040

(b) You can also make dashes (or blanks) to replace the future digits. Start with fifty-three thousand. According to the name "thousand," there should be 3 spaces after 53.

53 \_ \_ \_

Now replace the dashes with digits. four hundred ten is 410. So, we get 53 4 1 0

Place comma(s). Our number is 53,410

### B. Standard Form, Word Form, and Expanded Form

**Standard form:** The standard form to write a number is to express it as a single number with digits. An easy way to remember standard form is simply the way you write a number.



**Example:** In the example above, the standard form is 7,300,040



Word form: Word form is to write the number using words rather than numbers.



**Example:** Write the number 86,546 in word form.

Rather than writing the number, you would write the words you say to express that number.

Eighty-six thousand five hundred forty-six.

Expanded form: Expanded form is to write the number with the value of each digit attached to it.



**Example:** Write the number 8,532,706 in expanded form.

The expanded form is:  $8,000,000 + 500,000 + 30,000 + 2,000 + 700 + 6$

*Note: Skip the place value containing 0. As in the previous example, a 0 is in the tens place. In the expanded form the tens place is skipped, it goes from 700 to 6, no tens.*

### C. Comparing Numbers

Moving from the greatest place value to the lesser place values allows students to rely on their place value knowledge to compare numbers.



**Example:** Which is bigger: 156,562 or 15,662 ?

Students can look at each number's highest place value and quickly decide that the number in the hundred thousands is larger than the number in the ten thousands.

$$156,562 > 15,662$$

A strategy that may also help students when ordering closely related numbers is to create a vertical chart that compares all the numbers.



**Example:** Arrange the following numbers in order from smallest to greatest.

569,541; 569,651; 569,543; 569,548

5	6	9	5	4	1
5	6	9	6	5	1
5	6	9	5	4	3
5	6	9	5	4	8

Start from the greatest place value and move right. We see that in all the numbers the digits until the thousands places are the same. The number with the greatest hundreds place is then the greatest. The 2<sup>nd</sup> number should be marked as 4 i.e. the greatest. Out of the remaining three numbers, the tens place is the same for all. Hence, the ones place will determine the order.

$$569,541; 569,543; 569,548; 569,651$$

Date: \_\_\_\_\_

Start time: \_\_\_\_\_

End time: \_\_\_\_\_

Score: \_\_\_\_/23

**Write the place value of the underlined digit.**

1. 308,723

\_\_\_\_\_

2. 134,978

\_\_\_\_\_

3. 354,877

\_\_\_\_\_

4. 149,729

\_\_\_\_\_

5. 8,010

\_\_\_\_\_

6. 18,914,000

\_\_\_\_\_

7. 1,310,892

\_\_\_\_\_

8. 56,238

\_\_\_\_\_

**What number is this?**

9. Five hundred thousand nine hundred five:

\_\_\_\_\_

10. 5,000 + 900 + 5:

\_\_\_\_\_

11. Five hundred thousand ninety-five:

\_\_\_\_\_

12. 5,000,000 + 9,000 + 5:

\_\_\_\_\_

13. Five thousand ninety-five:

\_\_\_\_\_

14-15. Write the word form and expanded form of the number 60,003.

\_\_\_\_\_

\_\_\_\_\_

**Arrange these numbers from smallest to greatest.**

16. 532,647

532,307

531,347

533,007

532,457

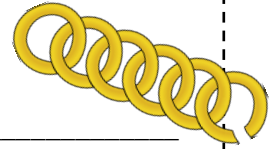
\_\_\_\_\_

**17. Indicate all statements that are true.**

- A) The value of the digit 4 in 345 is the same as the value of the digit 4 in 157,542.
- B) The digit 7 in the tens place is 100 times bigger than the digit 7 in the ones place.
- C) Seven thousands is four hundred fifty five more than six thousand five hundred forty five.
- D) Eight hundred thousand is less than 4 million plus 3 million.
- E) The value of the digit 6 in 5,756 is 10 times less than the value of the digit 6 in the number 7,641.

**Word Problems:**

18. Students are making paper chains. They have made four chains. The chains have: 23,804 links, 20,084 links, 28,304 links, and 20,048 links. Arrange the chains from the largest to the smallest.



19. Make the smallest number possible with ALL these digits: 8, 3, 1, 4. Explain how you found the smallest number.

20. California State University had 5,964 freshmen, 3,389 sophomores, 5,564 juniors, and 3,349 senior students. Put the classes in order from least to greatest.

21. New York Zoo had 495,674 visitors last year. The Washington State Zoo had four hundred eighty nine thousand and one visitors. Write in standard form how many visitors the Washington State Zoo had. Which zoo had more visitors?



**CHALLENGE!**

22. Which is the highest odd-number palindrome that is more than 200 and less than 500?  
[Hint: A palindrome is a number or word that reads the same backward and forward.]

- a) 413
- b) 494
- c) 353
- d) 393

23. The 2014 population estimate for the Texas is 26965958 people. New York City's population is 8491079. Place the commas correctly, and then explain which number is greater.

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Week: 1 - Day 1

- |  |   |
|--|---|
| 1) thousands   | 2) ten thousands                          |
| 3) hundred thousands   | 4) ten thousands                          |
| 5) thousands   | 6) ten thousands                          |
| 7) millions  | 8) tens                                   |
| 9) 500,905   | 10) 5,905                                 |
| 11) 500,095  | 12) 5,009,005                             |
| 13) 5,095  | 14-15) sixty thousand three; $60,000 + 3$ |
| 16) 531,347; 532,307; 532,457; 532,647; 533,007  |   |
| 17) A, C, D  |   |
| 18) 28,304; 23,804; 20,084; 20,048   |   |
| 19) 1,348 [Put the smaller digits in the higher place values and the larger digits in the least place values.]       |   |
| 20) 3,349 (seniors), 3,389 (sophomores), 5,564 (juniors), 5,964 (freshmen)   |   |
| 21) 489,001; New York Zoo  | 22) d                                     |
| 23) Texas; Texas' population is 26 million while New York City's population is 8 million. [26,965,958 and 8,491,079] |   |

