



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

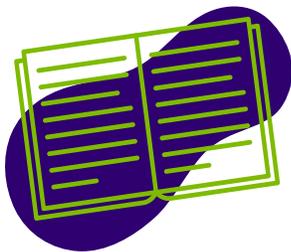
## Curriculum Sample

**A Grade Ahead will challenge your students and help them achieve their goals!**

This school year, our academy's 4<sup>th</sup> grade students will be participating in A Grade Ahead's Blended Learning program that integrates both traditional and electronic methods to teach students.

Our students begin the week learning a lesson and answering practice questions with paper and pencil in our monthly lesson booklets. Then they go online to a website to complete three days of online activities to master the topic of the week. Each month also includes three weekly quizzes and one test.

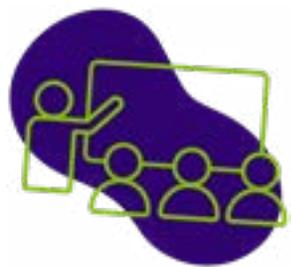
Here's how it works:



### Blended Learning Booklet

Each month, students receive a lesson booklet that is split into four weeks of lessons and practice problems.

(At the end of this document, you will find a full sample of one week's lesson and practice problems from A Grade Ahead's 4<sup>th</sup> grade math curriculum.)



### Weekly Class

Each week, students attend a weekly class, either in person or online, and learn a lesson from a teacher. Together, the class completes practice problems to understand the weekly topic.



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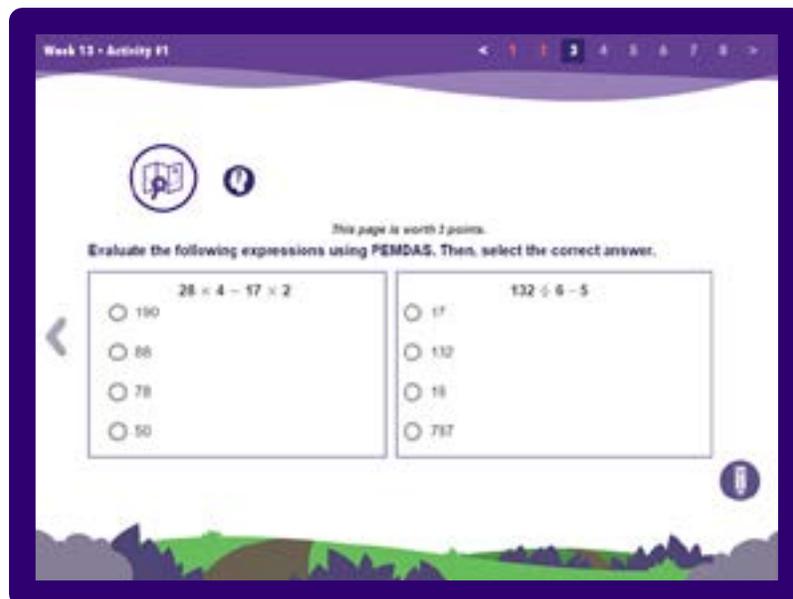
## A Grade Ahead Online Activities

After learning the lesson and practicing problems with a traditional approach, students continue learning online through activities at [online.ajgradeahead.com](https://online.ajgradeahead.com). Every week, students have three days of homework that can include both curriculum facts and word problems.

A Grade Ahead Online offers many benefits to students and parents, including

- **Interactive and colorful questions** with formats like matching, drag and drop, fill in the blank, multiple choice, and more.
- **Automatic grading** that saves times for parents and provides immediate explanations for students. They know whether they got a question right or wrong as they are going through the homework, so they can make adjustments if necessary.
- **A rationale for every online question** that explains the correct answer, so students can learn from their mistakes immediately.
- **Student progress reports** that are easily accessible without parents needing to upload any data.
- **Adaptive learning paths** that provide more challenging questions to students who perform well on the first set of activities.

Here is a peek at a few of our online exercises:



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Week 9 - Activity 11



This page is worth 2 points

Sarah and her brother played a game of Monopoly. The total time they took was 4 hours 10 minutes. This included three interruptions of 18 minutes, 26 minutes, and 37 minutes.

How long were the interruptions combined? Answer in hours and minutes. (2 points)

hour(s)  minutes

What long was the game (without the interruptions)? Answer in hours and minutes. (1 point)

hour(s)  minutes



## Want to see how A Grade Ahead works first-hand?

We have attached an entire lesson and one day's worth of homework for you to print out and try.



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# Lesson Booklet Sample

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

**Print it out and try it!**



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**4<sup>th</sup> Grade • Month 1**

# MATH

**BLENDED LEARNING LESSON BOOKLET**

**NAME** \_\_\_\_\_



**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.



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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



 <p><b>Student Practice</b></p>	<p><b>Write the place value of the underlined digit.</b></p>		
	<p>1. 30<u>8</u>,723</p> <p>_____</p>	<p>2. 1<u>3</u>4,978</p> <p>_____</p>	<p>3. <u>3</u>54,877</p> <p>_____</p>
	<p>4. 1<u>4</u>9,729</p> <p>_____</p>	<p>5. <u>8</u>,010</p> <p>_____</p>	<p>6. 18,9<u>1</u>4,000</p> <p>_____</p>
	<p>7. <u>1</u>,310,892</p> <p>_____</p>	<p>8. 56,2<u>3</u>8</p> <p>_____</p>	<p>9. 8, <u>2</u>0016</p> <p>_____</p>

**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.



*Note: Do not use the word “and” in word form. You will learn later that it is used to denote decimals.*

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.*



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**Student Practice**

*Students must show their work in the space provided.*

**What number is this? Write it in standard form.**

10. Five hundred thousand nine hundred five: \_\_\_\_\_

11.  $5,000 + 900 + 5$ : \_\_\_\_\_

12. Five hundred thousand ninety-five: \_\_\_\_\_

13.  $5,000,000 + 9,000 + 5$ : \_\_\_\_\_

14. Five thousand ninety-five: \_\_\_\_\_

15-16. Write the word form and expanded form of the number 60,003.

\_\_\_\_\_

\_\_\_\_\_

**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



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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



**Student Practice**

*Students must show their work in the space provided.*

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

17.    532,647        532,307        531,347        533,007        532,457

\_\_\_\_\_

18-19. Make the smallest number possible with ALL these digits: 8, 3, 1, 4. Explain how you found the smallest number.

\_\_\_\_\_  
\_\_\_\_\_

**CHALLENGE!**

20. 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

21. 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.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_



**Answers of Student Practice**

- |  |   |
|--|---|
| 1) thousands   | 2) ten thousands                          |
| 3) hundred thousands   | 4) ten thousands                          |
| 5) thousands   | 6) ten thousands                          |
| 7) millions  | 8) tens                                   |
| 9) thousands   |   |
| 10) 500,905  | 11) 5,905                                 |
| 12) 500,095  | 13) 5,009,005                             |
| 14) 5,095  | 15-16) sixty thousand three; $60,000 + 3$ |
| 17) 531,347; 532,307; 532,457; 532,647; 533,007  |   |
| 18-19) 1,348 ; Put the smaller digits in the higher place values and the larger digits in the least place values.    |   |
| 20) d  |   |
| 21) Texas; Texas' population is 26 million while New York City's population is 8 million. [26,965,958 and 8,491,079] |   |



Head online to complete all days of the course:

**MATH: Place Value (W1)**



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