

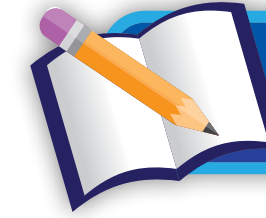
ALPHA MATHEMATICS

PROGRAM
OVERVIEW



ALPHA PUBLISHING





PHILOSOPHY

The curriculum of Alpha Math was developed with the notion that Math extends beyond the classroom. Students need to understand the purpose of what they're doing, the logic behind their procedures, and the reasonableness of their solutions. Each lesson is aligned with the Common Core State Standards, encouraging students to approach math practically so that they are prepared for college and career.

In the past, students were asked to memorize mathematical concepts without ever fully understanding their function in their real world application. Same time, the subject of math was limited to the classroom, leaving students with the ever-burning question: "When will I ever use this in real life?". Alpha Math's problems and World Connections place math in a real-world context, allowing students to gain a purpose to learning.

There is always more than one way to reach a solution. One size does not fit all. Success comes from practice and understanding. Alpha provides multiple mathematical strategies and encourages students to choose the approach with which they are most comfortable.

It is short sighted to demand a quick, right answer and to rely on this method as a measure of the student's mathematical ability. Math is more than just numbers and math class is a perfect time to encourage literacy, writing, and communication. Classroom discussions provide an opportunity for each child to speak up and become engaged in the material so that no student is left behind. Writing provides student a chance to formulate their ideas and to analyze their reasoning. Student participation and writing provides teachers insight to how their students are progressing and in which areas they need support.

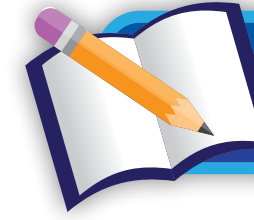
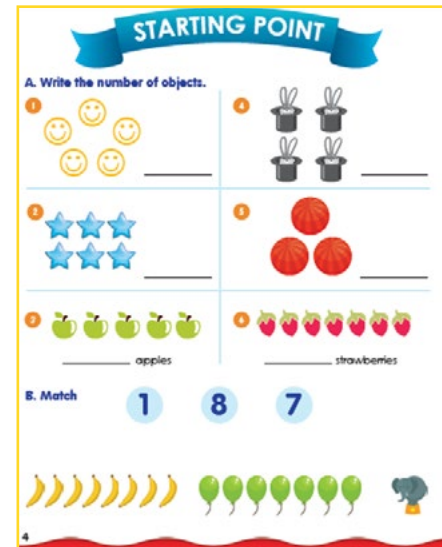
We believe that hands-on activities and the use of manipulatives help otherwise abstract mathematical ideas to become concrete. Each lesson starts with a hands-on activity to introduce a new concept.

Alpha Math was created with the student in mind. We firmly believe that math can be fun once student make sense of what they are doing in math and why. We hope that our learners enjoy using the program as much as we enjoyed creating it.

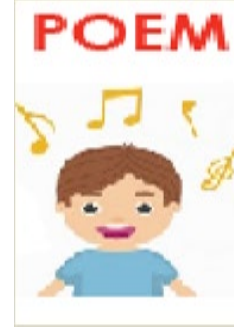
DOING MATH

STARTING POINT

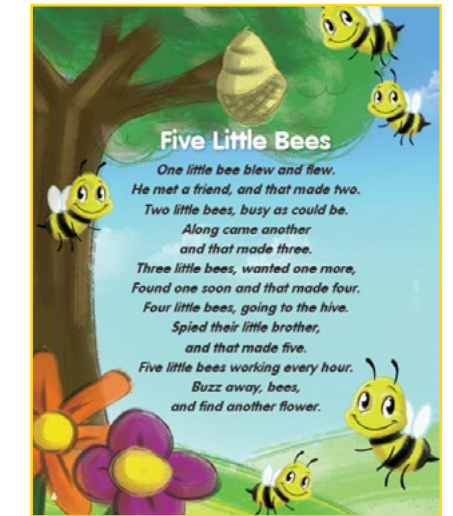
Checks previous knowledge of students. At the beginning of each chapter, teachers can assess the prior knowledge of children and ensure their readiness for the new concepts.



GRADES 1-2

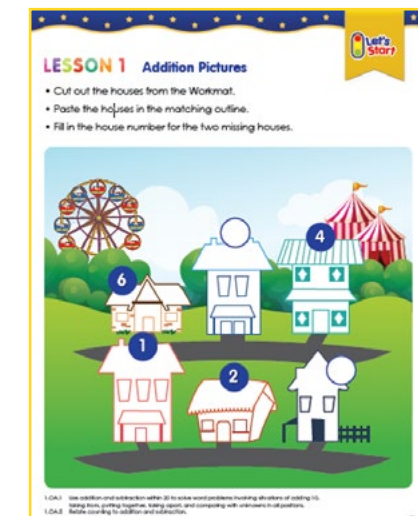
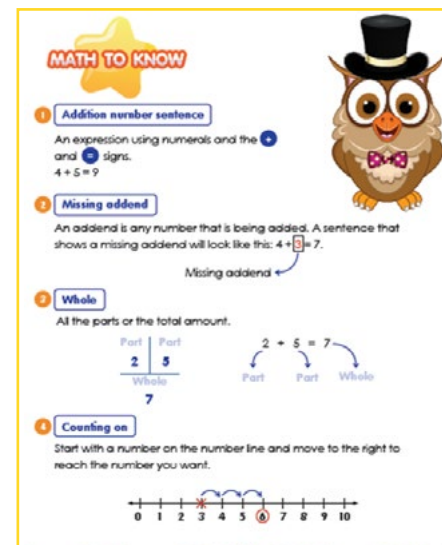


Introduces mathematical terminology in a fun rhythmic form for the class to read together. Students also act out the scenes of each poem to help preview the upcoming math concepts.



MATH TO KNOW

Defines new terms relevant to the chapter. Students will improve their math language skills when they are introduced to the new vocabulary words they will learn in the chapter.



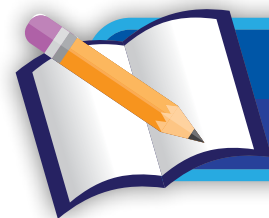
Let's Start

Allows students to play with manipulatives in the fun hands-on activities. On their own students can explore and figure out the mathematical concept for the lesson.



TIME TO LEARN

Introduces the concept and various mathematical approaches. With the examples provided, students can have rich classroom discussions. The vocabulary is used within context so children can use it as a reference when solving the exercises.



GRADES 3-5



TIME TO LEARN

Introduces the concept and various mathematical approaches. With the examples provided, students can have rich classroom discussions. The vocabulary is used within context so students can use it as a reference when solving the exercises.

LESSON 1 4-Digit Numbers

TIME TO LEARN

How much is one hundred? 10 tens make a hundred. Write the number.

How much is one thousand? 10 hundreds make a thousand. Write the number.

One thousand is the smallest 4-digit number.

VOCABULARY

4-digit number
thousand
place-value chart

The value: 2,000 200 70 3

CCSS alignment code show the standards of the lessons



MATH AROUND US

Shows students how math is relevant and extends beyond the classroom. Students can apply abstract mathematical concepts as they learn about the world around them.



Do you know that ...

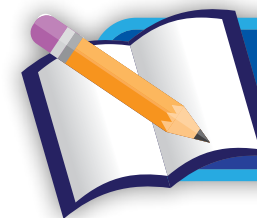
The state of Alaska has about 2,500 islands.

Use the place-value blocks and chart to show the number of islands in Alaska.

Place-value chart

Thousands	Hundreds	Tens	Ones
2	5	0	0

The number is 2,500.



Lessons practices



As students progress, they will become familiar with mathematical concepts through practice to reinforce their understanding of math. In each lesson, there are two sections of practice problems:

Step by Step (Guided) and Practice (Independent).

STEP BY STEP

How many in all?

1. 1 turtle is sitting on the grass. 2 more turtles join in. How many turtles in all?

2. 5 elephants are walking in the jungle. 3 more join them. How many elephants in all?

3. 3 children are playing in the garden. 4 more join them. How many children in all?

PRACTICE

A. Write how many objects there are in all.

1. 4 stars

2. 5 balls

3. 8 apples

B. Draw the missing objects to show the number.

STEP BY STEP

- Provides a guided practice following the initial introduction of new skills which engage students in the learning process.
- Teacher encourages students and provides full guidance.
- Teacher helps students facilitate discussion by providing suggestions and ideas.
- Students reach a conclusion with teacher supervision.

PRACTICE

- Provides an independent practice for students to apply their understanding and mastery of the new skills.
- Students confidently solve problems independently.
- Students ask questions and express their own ideas independently.
- Students reach their own solutions independently.



PROBLEM SOLVING

Includes a wide range of word problems to demonstrate the use of generic problem solving methods. Student can hone in on both their mathematical and literacy skills as they learn how to reason and justify their answers.

PROBLEM SOLVING

- 1 Mark writes six thousand, five hundred two like this. Is he correct? Explain.

652

- 2 Linda says there are three different ways to write 3,692. Do you agree with her? Explain.

- 3 Betty says that 6,358 and 6,385 are alike in some values and different in others. Do you agree? Explain.



Vocabulary Check

Mathematics language builder

Refreshes student's memory of important mathematical terminology presented throughout the chapter.



Vocabulary Check Complete

Form of a number that uses written words: _____
Form of a number that shows the total of the values of all the digits: _____
Form of writing a number that shows only its digits: _____

Problem-Solving Strategies

The final lesson in each chapter teaches and encourages children to use the design process to solve problems.

1. Read and understand the problem.

By reading the problem thoroughly and underlining the given information, students will be able to identify the most important and necessary details in the problem solving process.

2. Make a plan

Students will make a plan to solve the given problem based on the information they gathered above.

3. Carry out the plan.

Students apply problem-solving abilities to carry out the plan they made.

4. Check.

Discovering the way to self-evaluation for their solution and overall work.

Grade 1

TIME TO LEARN

Steps for problem solving

1 Read and understand the problem.	Underline what you know. Circle what you need to find.
2 Make a plan.	How can you solve the problem? Solve the problem by: Drawing a picture. Making a table.
3 Carry out the plan.	Does your answer make sense? Is the math correct?
4 Check.	

STEP STEP

In a parking lot, there are 2 red cars, 4 blue cars arrive and park there as well. How many cars are there in all?

1 Read and understand the problem.	2 red cars, 4 blue cars How many in all?
2 Make a plan.	I will draw and count.
3 Carry out the plan.	 $2 + 4 = 6$
4 Check.	Count the cars and check the sum.

Explaining the steps of problem-solving strategy before applying the strategy in solving Math problems

Grade 3

TIME TO LEARN

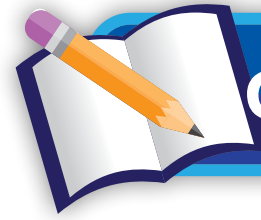
Steps for problem solving

1 Read and understand the problem.	Underline what you know. Circle what you need to find.
2 Make a plan.	How can you solve the problem? Solve the problem by: Drawing a picture. Making a table.
3 Carry out the plan.	Does your answer make sense? Is the math correct?
4 Check.	

STEP STEP

I am a 4-digit number. I have a 3 in the ones place. The digit in my tens place is double the digit in my ones place. I have a 0 in the hundreds place. I have 8 in my thousands place. What number am I?

1 Read and understand the problem.	4-digit number: 3 in the ones place double 3, or 6, in the tens place 0 in the hundreds place 8 in the thousands place What number am I?								
2 Make a plan.	I can use a place-value chart.								
3 Carry out the plan.	<table border="1"><tr><th>thousands</th><th>hundreds</th><th>tens</th><th>ones</th></tr><tr><td>8</td><td>0</td><td>6</td><td>3</td></tr></table> The number is 8,063.	thousands	hundreds	tens	ones	8	0	6	3
thousands	hundreds	tens	ones						
8	0	6	3						
4 Check.	Check your math.								



Chapter Summary & Review

REFLECTION

Briefly summarizes mathematical concepts for students to review and to refer.

REFLECTION

Read and write 4-digit numbers to show the number in three different ways.

Place-value chart: Thousands, Hundreds, Tens, Ones. The value: 2,000, 300, 40, 5.

Expanded form: $2,000 + 300 + 40 + 5$

Standard form: 2,345

Word form: two thousand, three hundred forty-five

Ordering numbers

To order 2,563; 2,635; 2,548 you can use a number line or a place-value chart.

From the least to the greatest: 2,548; 2,563; 2,635

From the greatest to the least: 2,635; 2,563; 2,548

Rounding to the nearest 10 or 100

To round 3,472 to the nearest 10 and 100, you can use a number line or a place-value chart.

3,472 rounded to the nearest 10 is 3,470.

3,472 rounded to the nearest 100 is 3,500.

FINISH LINE

Vocabulary Review

A. Match.

4,000 + 200 + 5 Word form

12, 14, 16, 18, ... Odd numbers

Two thousand, three hundred eleven Expanded form

15, 17, 19, 21, ... Standard form

1,568 Even numbers

B. Complete each sentence with one of these words: pattern, chart, diagonal, round.

To _____, replace a number with a number that tells about how many.

A _____ is the way something happens repeatedly.

A _____ connects opposite corners of a figure.

A _____ is a way to show information in a simple way.

FINISH LINE

Provides a vocabulary review and summative assessment for the chapter.

REFLECTION

CHECK

Assesses students comprehension of the chapter.

REFLECTION

CHECK

A. Write the number.

B. Write the number in three different ways.

Place-value chart: Thousands, Hundreds, Tens, Ones.

C. Order the numbers from greatest to least.

3,427; 3,274; 3,742

D. Round to the nearest ten.

475

E. Round to the nearest hundred.

545

F. Complete the pattern.

19, 20, _____

CHAPTER TEST

A. Write each number in standard form.

1. Two thousand, eight hundred twenty-one _____

2. $5,000 + 100 + 60 + 1$ _____

B. Write the number in different ways.

Expanded form: _____

Standard form: _____

Word form: _____

C. Match each number with its place on the number line.

1,100 1,200 1,300 1,400 1,500 1,600 1,700 1,800

1,580 1,300 1,650

CHAPTER TEST

Provides a formative assessment at the end of the chapter to test students' understanding of the content.

CHECKPOINT

A formative assessment in the middle of each chapter to evaluate students' progression of understanding the first half of the chapter.

CHECKPOINT

A. Complete

1. Place-value chart: Thousands, Hundreds, Tens, Ones. The number is _____.

2. The value of the digit 3 in 1,381 is _____.

3. The value of the digit 5 in 4,521 is _____.

4. The value of the digit 6 in 6,711 is _____.

B. Order the numbers from least to greatest.

9,990; 9,199; 9,909

C. Order the numbers from greatest to least.

7,896; 2,789; 3,817

Vocabulary Review

A. Match.

4,000 + 200 + 5 word form

12, 14, 16, 18, ... odd numbers

Two thousand, three hundred eleven expanded form

15, 17, 19, 21, ... standard form

1,568 even numbers

B. Complete each sentence with one of these words: pattern, chart, round.

To _____ is to replace a number with a number that tells about how many.

A _____ is the way something happens repeatedly.

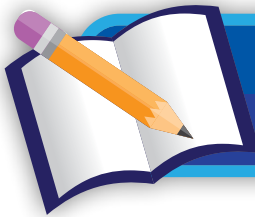
A _____ is a way to show information in a simple way.

Vocabulary Review

Provides various fun activities for students to review the chapter vocabulary words.

"Mathematics is not a list of disconnected topics, tricks, or mnemonics; it is a coherent body of knowledge made up of interconnected concepts. Therefore, the standards are designed around coherent progressions from grade to grade. Learning is carefully connected across grades so that students can build new understanding onto foundations built in previous years"

Core Standards Initiative

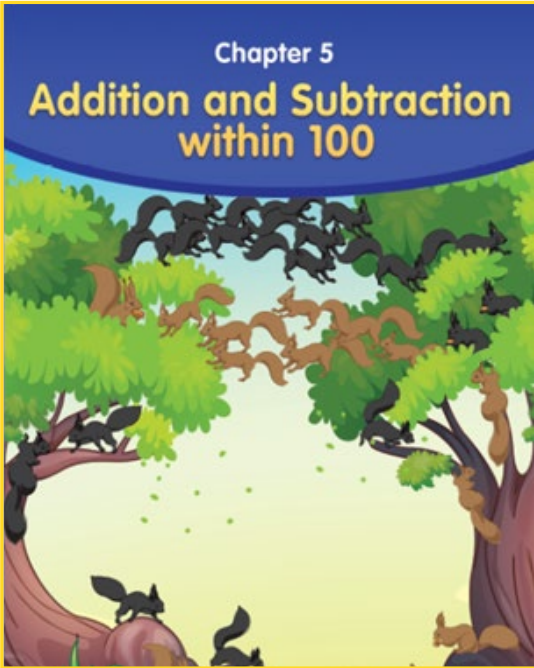


Alpha Math is Coherent

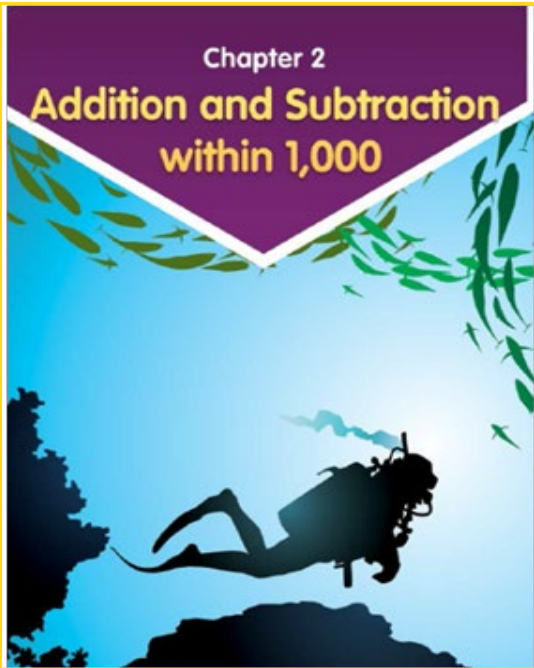
Grade 1



Grade 2



Grade 3



Alpha Math Differentiated Practice Book

Practice Book

Provides a formative assessment for the on-level students with a reviewing tool to help refreshing their minds

Reteach Book

Provides a support for struggling students

Enrich Book

Provides a challenge for Advanced students

Alpha Math Differentiated Practice Book

3

Practice Book

Lesson 1: 4-Digit Numbers

Connect
Remember ...
All numbers are made from digits 0, 1, 2, 3, 4, 5, 6, 7, 8, and 9. You can show 2,194 in different ways.

1 Place-value blocks

2 Place-value chart

Thousands	Hundreds	Tens	Ones
2	1	9	4

The value: 2,000 100 90 4

A. Write the number.

1

2

3

Chapter 1

Reteach Book

Lesson 1: 4-Digit Numbers

Reteach
Think about place value when writing a number.

Thousands	Hundreds	Tens	Ones
3	4	2	6

Draw a line to match each model with the number it shows.

6,435

2,435

4,527

4,507

Chapter 1 - Reteach

Enrich Book

Lesson 1: 4-Digit Numbers

A. Write the number.

1 5 thousands, 6 hundreds, 2 tens, 4 ones

2 8 hundreds, 6 thousands, 2 ones, 5 tens

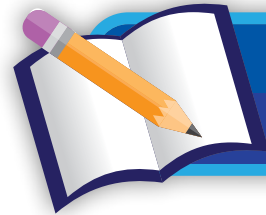
3 9 tens, 3 hundreds, 7 thousands, 8 ones

B. Jazmin says the greatest 4-digit number is 9,999 and the smallest 4-digit number is 1,111. Do you agree? Explain.

C. Solve this math riddle.
I am a four-digit number. I have the smallest odd number in my thousands place. My hundreds place is double my ones place. I have 2 in my ones place. My tens place is the even number between 5 and 7. Who am I?

D. Eli says that 409 is the same as 4,009. Do you agree with him? Explain.

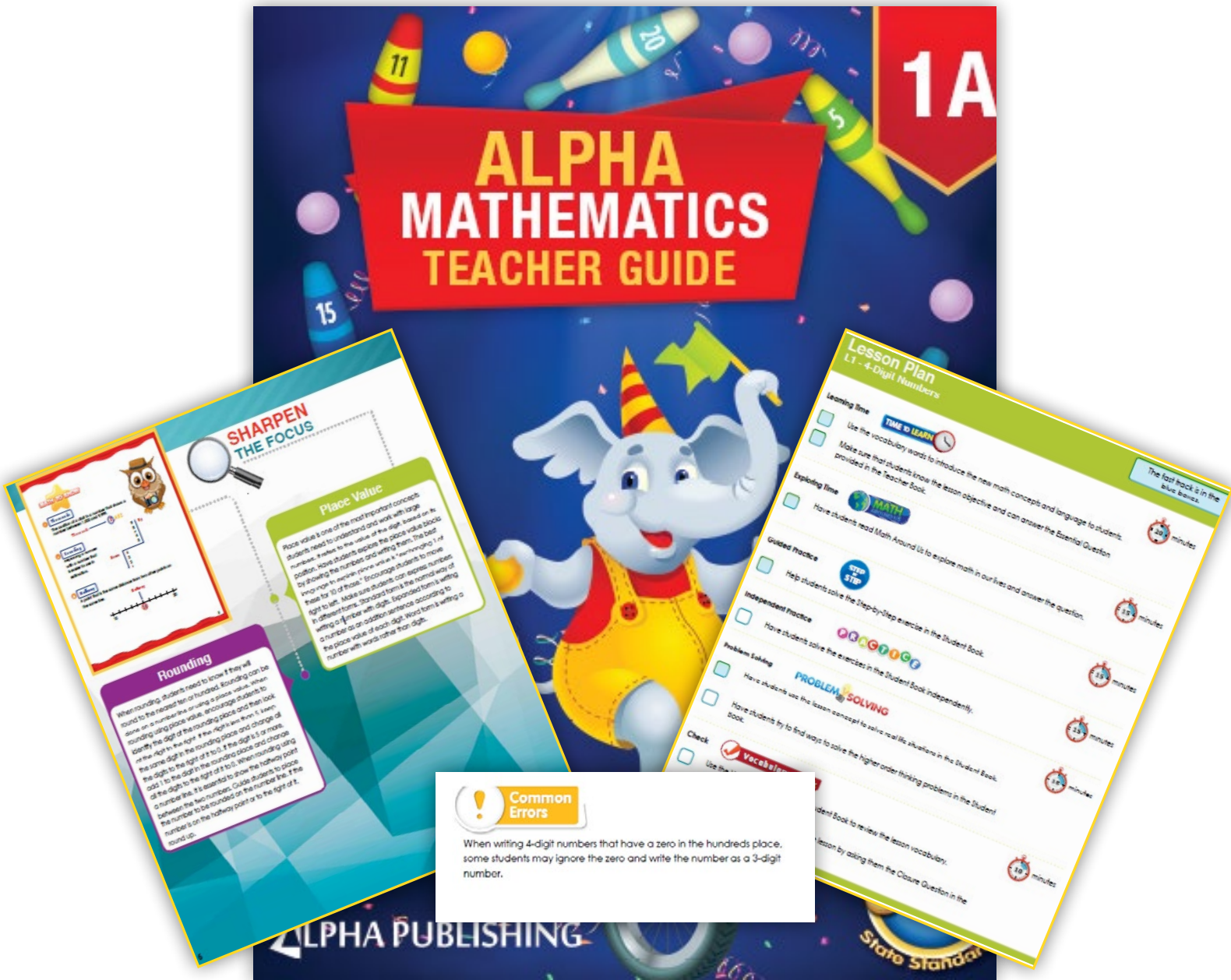
Chapter 1 - Enrich



Rich Resources

Alpha Math provides rich resources for a better teaching and learning experience.

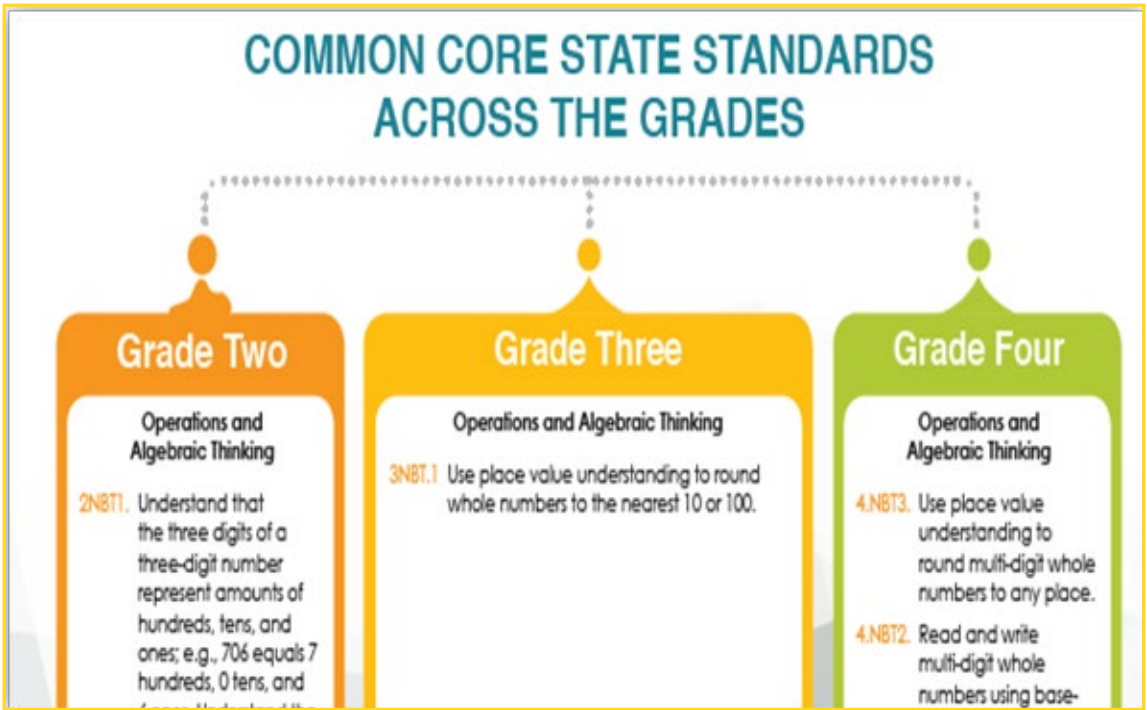
Teacher Guide



Common Errors

When writing 4-digit numbers that have a zero in the hundreds place, some students may ignore the zero and write the number as a 3-digit number.

Wider view for the teacher for the standards progression across the grades



Easy access to all the details of each lesson in the Chapter Planner

CHAPTER ORGANIZER					
Lesson	Objective	Vocabulary	Material	CCSS	Mathematical Practice
Lesson 1 4-Digit Numbers	Recognize 4-digit numbers.	4-digit number thousand place value chart	thousand, hundred, and ten blocks		MP.2 MP.4 MP.6, MP.7

Time for every step in the process of teaching math

Fast Track helps the teacher having a focus on the needed concepts in the program

Lesson Plan

L1 - 4-Digit Numbers

The fast track is in the blue boxes.

Learning Time	TIME TO LEARN	20 minutes
<input type="checkbox"/>	Use the vocabulary words to introduce the new math concepts and language to students.	
<input type="checkbox"/>	Make sure that students know the lesson objective and can answer the Essential Question provided in the Teacher Book.	
Exploring Time	MATH	15 minutes
<input type="checkbox"/>	Have students read Math Around Us to explore math in our lives and answer the question.	
Guided Practice	STEP STEP	15 minutes
<input type="checkbox"/>	Help students solve the Step-by-Step exercise in the Student Book.	
Independent Practice	PROBLEM SOLVING	15 minutes
<input type="checkbox"/>	Have students solve the exercises in the Student Book independently.	
Problem Solving	PROBLEM SOLVING	15 minutes
<input type="checkbox"/>	Have students use the lesson concept to solve real life situations in the Student Book.	
<input type="checkbox"/>	Have students try to find ways to solve the higher order thinking problems in the Student Book.	
Check	Vocabulary Check	10 minutes
<input type="checkbox"/>	Use the Vocabulary Check in the Student Book to review the lesson vocabulary.	
<input type="checkbox"/>	Check that students have mastered the lesson by asking them the Closure Question in the Teacher Book.	

Clear guidance that assists the teacher to have a better educational environment

Word-Wall

Create a Word Wall in the classroom to add the new vocabulary words students will encounter in each chapter. Introduce the words when they appear in each lesson. Continue to repeat and review the words along with the chapter.

"The warm up activities are interesting for students and easy handling for teachers"

Math Head of department in an international School - Egypt

SHARPEN THE FOCUS

Place Value

Place value is one of the most important concepts students need to understand and work with large numbers. It refers to the value of the digit, based on its position. Have students explore the place value blocks by showing the numbers and writing them. The best language to explain place value is "exchanging 1 of these for 10 of those." Encourage students to move right to left. Make sure students can express numbers in different forms. Standard form is the normal way of writing a number with digits. Expanded form is writing a number as an addition sentence according to the place value of each digit. Word form is writing a number with words rather than digits.

Rounding

When rounding, students need to know if they will round to the nearest ten or hundred. Rounding can be done on a number line or using a place value. When rounding using place value, encourage students to identify the digit of the rounding place and then look at the digit to the right. If the digit is less than 5, keep the same digit in the rounding place and change all the digits to the right of it to 0. If the digit is 5 or more, add 1 to the digit in the rounding place and change all the digits to the right of it to 0. When rounding using a number line, it is essential to show the halfway point between the two numbers. Guide students to place the number to be rounded on the number line. If the number is on the halfway point or to the right of it, round up.

Professional development for the teacher to enhance the academic vision

- Tracking the CCSS Standards in each lesson
- Differentiated activities as a lesson trigger

5-1

Division as Equal Sharing

WARM-UP

On Level

Time: 10 minutes

Materials: 20 counters, table with 5 cells

Instruction: Give every student 20 counters and a copy of the table. Ask students to divide the counters equally among the cells.

Reteach

Time: 10 minutes

Materials: crayons

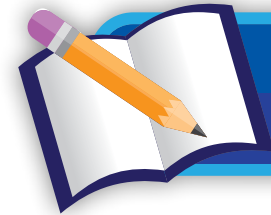
Instruction: Organize the class into groups of four and give 8 crayons to each group. Ask students to distribute the crayons equally among them. Ask: How many crayons do each of you get?

Standards
3.OA.2 Interpret whole-number quotients of whole numbers.
3.OA.3 Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities.

Objective
Interpret whole-number quotients of whole numbers as equal sharing.

Essential Question
How can you divide a number?
Possible answer:
You can figure out how many times another number fits into it.

Ready to Go
Say: In the last chapter, you learned about multiplication. In this chapter, you are going to learn about division, which is the opposite of multiplication. Today's lesson is about division as equal sharing.



Lesson plan package

Provides a daily guidance of the teacher to ensure a successful delivery for the lessons.



Games and Activities Book

Provides a practical and creative approach, to using mathematical skills in a life framework.



Multiple Intelligence Book

Various hand-on activities based on the theory of multiple intelligence (Howard Gardner) to address all types of intelligences.



Anchor Activities Book

Activity that provides an ongoing assignments so that students can work on independently.



Exit Activities Book

Exit cards are a quick assessment tool for teachers to help them become more aware of Students understanding of concepts taught .



Assessment Book

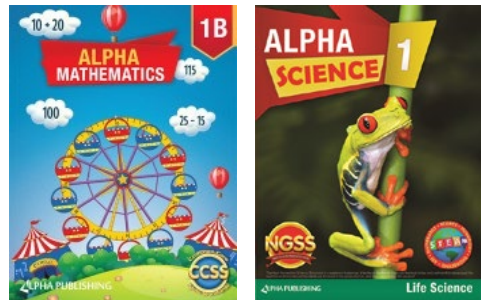
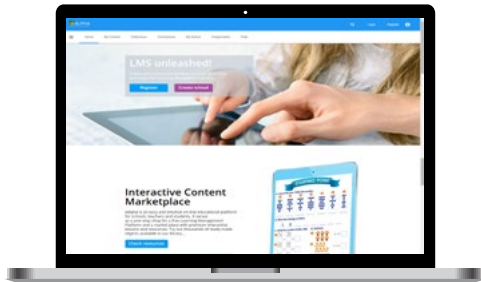


A rich assessment book that covers all the common core state standards skills with different types of questions and performance assessment. Questions are based on the 4 levels of Webb's DOK which assess the performance of the student over the whole program.





Alpha Learning Content Management System

Our LCMS consists of:

<p>Alpha Curriculum consists of the e Books versions of Alpha Science and Alpha Math supplementary activities.</p>	
<p>eALPHA Mobile eLearning Platform connects students and teachers, offering them a collaborative, interactive, and mobile learning environment that impacts every aspect of education.</p>	
<p>eALPHA instructor Create Teach Share offers a simplified and easy-to-use content creation authoring tool together with the capability to create structured content repositories. Instructor enables users to create highly interactive, multiplatform educational content, publish it in its own public or private repository or export it as a SCORM package to use in any SCORM compliant eLearning platform.</p>	
<p>eAlpha Learning Anywhere is an offline extension to eAlpha eLearning Platform enabling users to work with interactive content on any of their devices in an offline environment.</p>	



OFFICES

DUBAI

Office 901, Clover
Bay Tower, Business
Bay, Dubai, UAE
Tel : +971 4 391 8658

Unit # A03, International
Media Production Zone
Mohammed Bin Zayed St,
Dubai, U.A.E.
Tel : +971 4 4212581

EGYPT

EDU LIGHTHOUSE
3 El Sad El Aaly square, Floor 3
El Dokki, Giza, Egypt.
Postal code: 12611
Tel : +202 37489207

U.S.A

242W 30th Street
Suite 900
New York, NY 10001

U.K

Office 22
Business Development Centre
Stafford Park 4, Telford, TF3 3BA,
Shropshire, U.K.

REGIONAL INQUIRIES

FOR GENERAL INQUIRIES

Tel: +971 4 391 8658
Toll Free: 80010010
Web Site: alphaedu.info
Email : askme@alphaedu.ae

U.A.E, QATAR AND LEBANON

souzan.edde@smarteducation.ae

SAUDI ARABIA AND KUWAIT

andrew.dunning@smarteducation.ae

MIDDLE EAST AND NORTH AFRICA

andrew.dunning@smarteducation.ae

TRAINING AND CONSULTANCY

danielle.nasser@smarteducation.ae

U.A.E, OMAN AND BAHRAIN

lkbal.cherkaoui@smarteducation.ae

EGYPT

shaymaa.aly@edulighthouse.com

JORDAN

danielle.nasser@smarteducation.ae

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CONTACT US

P.O. Box 93034 , Office 901,
Clover Bay Tower, Business Bay, Dubai, UAE

Toll Free 80010010 | Tel : +971 4 391 8658 | Fax : +971 4 391 8627

askme@alphaedu.info | **www.alphaedu.info**