

Illinois IAR Grade 3 Math Step by Step

A Beginner Friendly Guide to Learning Math

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STEP BY STEP

Grade 3 Math Made Easy!

Hi there, math superstar! ★

This book teaches you Grade 3 math **one step at a time**.

Every topic shows you a clear set of steps, then you practice using those steps until they feel easy!

- ✓ Follow the **steps** — they're your recipe!
- ✓ Try the **examples** along the way!
- ✓ Mistakes help you **learn**!

Ready to take it step by step? Let's go! 🚀

“I'm Owlbert! I'll guide you through every step. Just follow along!”



How to Use This Book

Every topic follows the same pattern. Here's what to look for!

Step Goal

Every topic starts with what you'll learn. These are your targets — read them first!

Words to Know

New math words explained in simple language. Learn these before reading the steps!

The Steps

*The heart of every topic! A numbered list of steps — your **recipe** for solving the problem. Read all the steps before moving on.*

Worked Examples

Watch each step in action! Every example shows the steps applied to a real problem.

Your Turn

Try filling in the blanks! This guided practice helps you use the steps on your own.

Practice

Now do it yourself! Use the steps you learned. Check your answers at the back of the book.

**Owlbert's Tips**

Your owl buddy shares tricks and encouragement. Owlbert knows the best shortcuts!

⚠ Watch Out!

Common mistakes to avoid. Everyone makes them — but now you won't!

✓ **Answers** to all practice problems are in the **Answer Key** at the back of the book!



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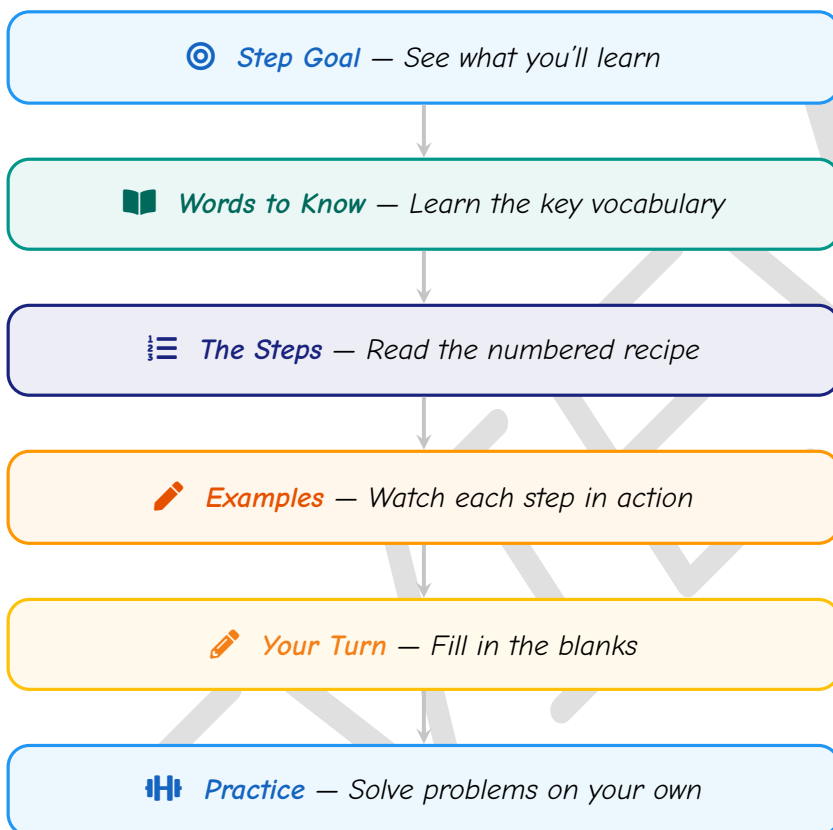


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🧑 How Every Topic Works 🧑

Each topic follows the same easy pattern!



★ **Tips for Students**

- Read **all** the steps before trying examples
- Cover the answer and try each example first
- Go back to the steps if you get stuck
- It's okay to look at the steps while you practice
- Check your answers at the back!

👤 **Tips for Parents**

- Let your child follow the steps at their own pace
- Encourage them to say each step out loud
- Review mistakes together using the steps
- 15–20 minutes per session is perfect
- Use alongside the Study Guide for deeper understanding!

X¹ Math Symbols You Should Know X¹

You'll see these symbols throughout this book!

Symbol	Name	What It Means	
+	Plus (Add)	Put numbers together.	$3 + 5 = 8$
-	Minus (Subtract)	Take away from a number.	$9 - 4 = 5$
$\times$	Times (Multiply)	Add equal groups.	$4 \times 3 = 12$
$\div$	Divide	Split into equal groups.	$12 \div 3 = 4$
=	Equals	Both sides are the same.	$2 + 3 = 5$
>	Greater Than	The left number is bigger.	$7 > 3$
<	Less Than	The left number is smaller.	$2 < 9$
$\frac{1}{2}$	Fraction Bar	Part of a whole. $\frac{1}{2}$ means 1 out of 2 equal parts	

“ Remember the Alligator! ”



The **greater than** (>) and **less than** (<) symbols are like an alligator's mouth. The alligator always wants to eat the **bigger** number!

$$8 > 3$$

8 is greater than 3

$$2 < 9$$

2 is less than 9



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 Key Math Words for Grade 3

- **Sum** — the answer when you add
- **Difference** — the answer when you subtract
- **Product** — the answer when you multiply
- **Quotient** — the answer when you divide
- **Factor** — a number you multiply
- **Array** — objects in rows and columns
- **Fraction** — a part of a whole
- **Numerator** — the top number in a fraction
- **Denominator** — the bottom number
- **Equation** — a math sentence with =
- **Estimate** — a smart guess, close to the real answer
- **Perimeter** — the distance around a shape
- **Area** — the space inside a shape
- **Rounding** — making a number simpler by going to the nearest ten or hundred



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PREVIEW

CHAPTER

1

Number Sense & Place Value

★ *What's Inside* ★

1.1 <i>Place Value: Ones, Tens, Hundreds</i>	2
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★ 1.1 Place Value: Ones, Tens, Hundreds ★

What You'll Learn

- Find the **ones**, **tens**, and **hundreds** place in any 3-digit number
- Tell the **value** of each digit
- Write numbers in **expanded form**

📖 Words to Know

- ▶ **Place Value** — How much a digit is worth based on where it sits in a number.
- ▶ **Digit** — A single number symbol: 0, 1, 2, 3, 4, 5, 6, 7, 8, 9.
- ▶ **Expanded Form** — Writing a number as the sum of each digit's value, like $527 = 500 + 20 + 7$.

How to find the value of each digit and write a number in expanded form

- 1 Find each digit's **place**: hundreds (left), tens (middle), ones (right).
- 2 Find each digit's **value**: hundreds $\times 100$, tens $\times 10$, ones $\times 1$.
- 3 Write in **expanded form**: add up the values with $+$ signs.



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Example: Write 527 in expanded form.

Step 1 Find each digit's place:

5 is on the left $\Rightarrow$ **hundreds** 2 is in the middle $\Rightarrow$ **tens** 7 is on the right $\Rightarrow$ **ones**

Step 2 Find each digit's value:

$5 \times 100 = 500$ $2 \times 10 = 20$ $7 \times 1 = 7$

Step 3 Write with + signs:

✓ $527 = 500 + 20 + 7$

Example: Write 406 in expanded form.

Step 1 4 $\Rightarrow$ **hundreds** 0 $\Rightarrow$ **tens** 6 $\Rightarrow$ **ones**

Step 2 $4 \times 100 = 400$ $0 \times 10 = 0$ $6 \times 1 = 6$

Step 3 Write with + signs:

✓ $406 = 400 + 0 + 6$

⚠ Watch Out! The digit 3 in 364 is NOT worth 3. It's in the hundreds place, so it's worth 300!



A 0 in a number is a placeholder. In 308, the 0 means zero tens.



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 **Your Turn:** Write 815 in expanded form.

Step 1 What place is each digit in?

8 $\Rightarrow$ _____ 1 $\Rightarrow$ _____ 5 $\Rightarrow$ _____

Step 2 Find each value:

8 $\times$ _____ = _____ 1 $\times$ _____ = _____ 5 $\times$ _____ = _____

Step 3 Write the expanded form:

815 = _____

Remember: The **same digit** means different things in different places! The 5 in **5**12 means 500, but the 5 in 1**5**2 means 50.



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Place Value Practice

Identify the Place

Write which place the underlined digit is in.

1. 473 _____

2. 581 _____

Find the Value

3. Value of 3 in 382: _____

4. Value of 6 in 561: _____

Write in Expanded Form

5. $259 =$ _____

6. $406 =$ _____

Put It All Together

7. $600 + 30 + 9 =$ _____

8. $400 + 0 + 7 =$ _____

Challenge!

9. I am a 3-digit number. My hundreds digit is 7. My tens digit is 2 more than my ones digit. My ones digit is 3. What number am I? _____



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CHAPTER

2

Multiplication & Division

★ *What's Inside* ★

2.1 Understanding Multiplication	7
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★ 2.1 Understanding Multiplication ★

What You'll Learn

- Understand multiplication as counting **equal groups**
- Write a **multiplication sentence** from a picture or story
- Show multiplication with **groups, arrays, and repeated addition**

Words to Know

- ▶ **Factor** — A number you multiply. In $3 \times 4 = 12$, the factors are 3 and 4.
- ▶ **Product** — The answer when you multiply. In $3 \times 4 = 12$, the product is 12.
- ▶ **Equal Groups** — Groups that all have the same number of items.
- ▶ **Array** — Objects arranged in equal rows and columns.

How to write a multiplication sentence from equal groups

- 1 Count the number of **groups** (this is the first factor).
- 2 Count how many are **in each group** (this is the second factor).
- 3 **Multiply** the two factors to find the product (or use repeated addition).



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Example: Emma puts 4 cookies on each tray. She fills 3 trays. How many cookies?

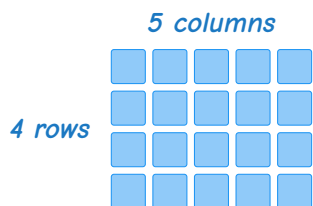
Step 1 Count the groups: 3 trays $\Rightarrow$ 3 groups

Step 2 Count how many in each group: 4 cookies per tray $\Rightarrow$ 4 in each

Step 3 Multiply: $3 \times 4 = 12$ (or add: $4 + 4 + 4 = 12$)

✓ $3 \times 4 = 12$ cookies

Example: Write the multiplication sentence for this array.



Step 1 Count the rows: 4 rows

Step 2 Count items in each row: 5 in each row

Step 3 Multiply: $4 \times 5 = 20$

✓ $4 \times 5 = 20$



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Example: Write 5×3 as repeated addition and find the product.

Step 1 How many groups? **5**

Step 2 How many in each group? **3**

Step 3 Add: $3 + 3 + 3 + 3 + 3 = 15$

✓ $5 \times 3 = 15$

⚠ Watch Out! 3×5 means "3 groups of 5" — NOT " $3 + 5$." Don't add the factors; multiply them!



💡 The first factor tells you HOW MANY groups. The second tells you HOW MANY in each group.

$5 \times 7 = 5$ groups of 7!

✏ Your Turn: There are 6 bags with 3 apples in each bag. How many apples?

Step 1 How many groups (bags)? _____

Step 2 How many in each group? _____

Step 3 Write the multiplication sentence:

_____ $\times$ _____ = _____



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Multiplication Practice

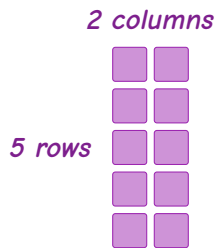
Count the Groups

1.  How many groups? _____

2.  How many groups? _____

Write the Multiplication Sentence

3.  _____ $\times$ _____ = _____



4. _____ $\times$ _____ = _____

Multiply

5. $4 \times 5 =$ _____

7. $6 \times 3 =$ _____

6. $2 \times 8 =$ _____

Challenge!

8. Jake has 7 packs of stickers with 4 stickers in each pack. How many stickers does Jake have?



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THANK YOU

Enjoyed This Preview?

Get the Full Book!

This preview shows just a small sample of what's inside.

The complete book includes:

- ✓ *All chapters and topics*
- ✓ *Hundreds of practice problems*
- ✓ *Complete answer key with explanations*
- ✓ *Colorful visuals and step-by-step examples*
- ✓ *Reference sheets and progress trackers*

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