LEVELS A–F · ALIGNED TO US COMMON CORE

ANGL MATHEMATICS

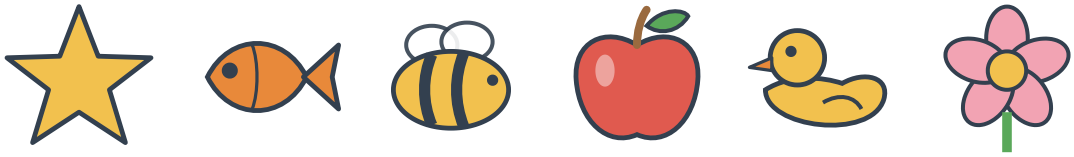
Level F

Fraction Division, Decimals & Volume

Recommended ages 10–11

Lesson Book

Write-In Edition



ANGL EDUCATION

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ANGL Mathematics, Level F: Fraction Division, Decimals & Volume

Lesson Book, Write-In Edition

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Hello, Grown-Ups!

This book teaches decimals to thousandths, fraction and whole-number division, fraction and decimal operations, volume, and coordinates. Your child writes right in it. You read the directions aloud and work beside them.

Every lesson has four pages

Learn	Builds On (what this lesson grows from), Goals, Key Ideas with pictures, and a Worked Example to do together.
Investigate	Hands-on work with counters, frames and objects: break things apart and put them back together.
Practice: Write	Writing practice: numbers, signs and short answers. Start at the green dot.
Practice	Problems to try, ending with a Think problem.

What you need

Base-ten pieces (or the paper ones on the workmats), fraction strips, unit cubes, a ruler with inches and centimeters, graph paper, a set of number cards 0 to 9, crayons, a pencil and scissors.

Tips

- Keep sessions short: about 30 minutes, four days a week. Use real objects first, then pictures, then numbers.
- Read the **Grown-up note** at the bottom of each page before you start it.
- Ask "How do you know?" often. Explaining is part of learning math.
- **Writing is not the same as knowing.** Trouble writing a number is not trouble understanding it. Your child may point or say the answer while you write it.

Every ANGL book, from Level A to Calculus, uses these same parts in the same order. The Teaching Guide has a short script for every lesson, Quick Checks, Chapter Tests and all the answers.

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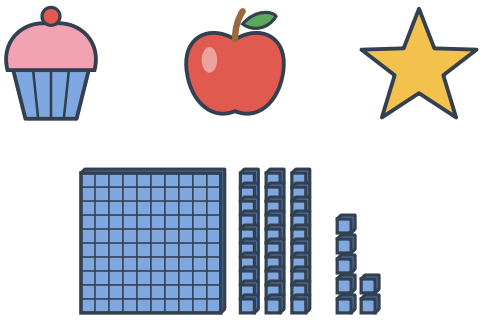
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Chapter 1

Place Value and Decimals to Thousandths



1 whole, 3 tenths, 7 hundredths

READ THE NUMBER.

Show **1.37** with the pieces: 1 flat, 3 rods and 7 cubes.

1.37 = ___ hundredths

YOU ALREADY KNOW

Place value to 1,000,000, the rule that each place is ten times the place to its right, and the standard methods for whole numbers.

YOU WILL LEARN

Decimals to thousandths: powers of ten, reading, comparing and rounding decimals, and moving the digits when we multiply or divide by 10 or 100.

Grown-up note. Talk about the picture first. Ask "Which piece is one whole? Which is one tenth?" and "How many hundredths are in 1.37?" Accept counting for now, and listen for "ten times," "tenths" and "thousandths."

Chapter 1 Am I Ready?

Readiness

1 · TEN TIMES THE VALUE.

$40 \times 10 =$ ___ $\quad 7 \times 10 =$ ___

2 · DECIMAL NOTATION.

$7/10 = 0.$ ___ $\quad 5/100 = 0.$ ___ ___

3 · WHICH IS GREATER?

0.6 $\quad <$ $\quad >$ $\quad =$ $\quad$ 0.55

4 · ROUND.

4,638 to the nearest hundred ___, ___ ___ ___

Digital Tools for Chapter 1

Scan the code, or go to anglmath.com/lf

Base-ten pieces, a decimal place-value chart and a number line

Grown-up note. Card 1 checks multiplying by ten (Level E, Lesson 1.1). Card 2 checks decimal notation for tenths and hundredths (Level E, Lesson 7.3). Card 3 checks comparing decimals to hundredths (Level E, Lesson 7.5). Card 4 checks rounding (Level E, Lesson 1.4). If a card is hard, replay that Level E lesson with the pieces before Lesson 1.1.

Lesson 1.1 Ten Times and One Tenth the Value

Learn

BUILDS ON Level E, Lesson 1.1, Ten Times the Value; Level E, Lesson 7.3, Decimal Notation

GOALS ★ **I can explain that a digit is ten times the digit to its right and one tenth the digit to its left.**

KEY IDEAS



With the pieces, a **flat** is 1 whole, a **rod** is 1 tenth and a **cube** is 1 hundredth. 10 tenths make 1 whole, and 10 hundredths make 1 tenth.
Each place is **ten times** the place to its right, and **one tenth** the place to its left.

WORKED EXAMPLE · TENTHS AND HUNDREDTHS



$$0.3 = 10 \times 0.03$$

$$0.03 = 0.3 \div 10$$

The 3 in the tenths place is 0.3. The 3 in the hundredths place is 0.03. So 0.3 is ten times 0.03, and 0.03 is one tenth of 0.3.

Grown-up note. Each place is ten times the place to its right, and one tenth the place to its left. Watch Out: a child may think 0.3 is only 0.27 more than 0.03, or count the cubes one at a time. Ask "How many hundredths make one tenth?"

Lesson 1.1

Ten Times and One Tenth the Value

Investigate

INVESTIGATE · TRADE DOWN



2 tenths

Trade each tenth rod for 10 hundredth cubes. How many hundredths now?



20 hundredths

2 tenths = ___ hundredths

INVESTIGATE · DIGIT LADDER

In **4.44**, each 4 is ten times the 4 to its right. Fill in the boxes.

4 = 10 × 0 . ___

0.4 = 10 × 0 . ___ ___

INVESTIGATE · MY WAY

Write a decimal with a 5 in the tenths place. Show that the 5 is ten times the digit to its right.

Grown-up note. Use base-ten pieces: a flat is 1 whole, a rod is 1 tenth and a cube is 1 hundredth. In Trade Down, the child trades each rod for ten cubes and counts them. In Digit Ladder, the child reads each place aloud, then writes the next place down.

Lesson 1.1

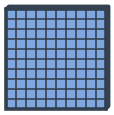
Ten Times and One Tenth the Value

Practice: Write

WRITE HOW MANY TENTHS OR HUNDREDTHS MAKE EACH PICTURE.



2 tenths = ___ hundredths



1 whole = ___ tenths

1 Write each product.

$10 \times 0.7 = ___$

$10 \times 0.06 = 0.___$

2 Write how many hundredths are in 0.5.

0.5 = ___ hundredths

Grown-up note. Read the first row aloud: "2 tenths is 20 hundredths." In problem 1, the child moves each digit one place to the left for a product of 10. Accept the products in either order once the child says "ten times."

Lesson 1.1

Ten Times and One Tenth the Value

Practice

1 Write each product.

$10 \times 0.5 = ___$

$10 \times 0.08 = 0.___$

2 How many tenths are in 3?

$3 = ___$ tenths

3 Circle the true number sentences.

$0.3 = 10 \times 0.03$ $0.3 = 10 \times 0.3$

$0.04 = 10 \times 0.4$ $4 = 10 \times 0.4$

4 Write the missing number. 10 hundredths make one tenth.

10 hundredths = ____ tenth

5 Draw 3 hundredths cubes, then write 3 hundredths as a decimal.

3 hundredths = 0.____

Think Is Ben right?

> **Ben** says: The 4 in 2.4 is ten times the 4 in 0.24.

Yes No

Grown-up note. Problem 3 needs the true sentences only. For the Think problem, ask "Which place is the 4 in each number?" A full answer says the 4 in 2.4 is tenths, 0.4, and the 4 in 0.24 is hundredths, 0.04.