FOR GROWN-UPS

Ancient Wonders Code Quest

A guide to the book, from Lantern Quests, Volume 3



AGES 9–12

ABOUT THIS BOOK

Your child helps Wickby on a quest of 50 missions in 5 chapters. Each clue they earn is a letter of the word that opens the lost lighthouse of Alexandria.

Each spread has two sides: a true fact and a math warm-up on the left, and the activity on the right: a puzzle, a code, or a picture to finish and color.

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11 wonders and places

37 puzzles

2 inventions of their own

71 math warm-ups

AFTER EACH WARM-UP, ASK

“How did you see it? Can you show it another way?”

HOW TO HELP

Let your child try first. A wrong answer is part of the game: ask what they tried, then try again together.

Ask your child to show you a favorite page, and to tell you what they did there.

1 What your child did

Every activity and the skill it practiced, and its Common Core link. Check the ones you have seen your child do.

GRADE a Common Core standard for grades 3 to 7 STRETCH from a later grade, met here as an early look

Each grade link names the Common Core math standards a task relates to, so you can see where it sits in school math. The pages practice a skill; they are not a test of it.

NUMBERS — 15 activities

	ACTIVITY	PRACTICED	COMMON CORE	PAGES
☐	**Fill in the missing bricks** Filled in a number pyramid.	Finding a missing number from the sum of two others.	GRADE 3 3.OA.A.4 GRADE 5 5.NBT.B.5, 5.NBT.B.6	9
☐	**Pick a basket that fits the limit** Picked a basket within a limit.	Solving a multistep money problem within a limit.	GRADE 4 4.OA.A.3	11
☐	**Color each part by its sum** Colored pictures by their sums.	Working out facts quickly, then using the answers as a color key.	GRADE 3 3.OA.C.7	13, 93
☐	**Add the Egyptian numbers** Read and added Egyptian numerals.	Reading, writing and adding numbers in an ancient numeral system.	GRADE 4 4.NBT.A.2, 4.NBT.B.4	19
☐	**Find the mistake in each answer** Found the mistakes in a page of worked sums.	Checking worked steps and fixing an error, and every step it changed.	GRADE 3 3.OA.A.1, 3.OA.C.7, 3.MD.C.6, 3.MD.D.8	31
☐	**Word problems** Solved a page of word problems.	Picking out the numbers in a short story and choosing the sums that solve it.	GRADE 4 4.OA.A.3, 4.MD.A.2	39
☐	**Follow the answers to the end** Followed a times-table path.	Recalling times facts quickly, each answer choosing the next step.	GRADE 3 3.OA.C.7 GRADE 4 4.OA.B.4	41

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NUMBERS — 15 activities

ACTIVITY	PRACTICED	COMMON CORE	PAGES
☐ **Solve the challenges** Solved math challenges.	Using several math skills on one page.	GRADE 3 3.MD.C.6, 3.MD.D.8, 3.OA.C.7, 3.OA.A.4, 3.NBT.A.1, 3.MD.B.3 GRADE 4 4.OA.C.5	43, 95
☐ **Find every way to combine the choices** Found every combination.	Listing every combination in an organized way.	GRADE 7 7.SP.C.8.b	47
☐ **Fill the boxes so every line is true** Filled in a math crossword.		GRADE 3 3.NBT.A.2 GRADE 4 4.NBT.B.5, 4.NBT.B.6	59
☐ **Work each sum in columns** Worked a page of column sums.	Adding and subtracting in columns, carrying and regrouping.	GRADE 4 4.NBT.B.4	61
☐ **Make every line add to one total** Made every line add up to the same total.		GRADE 3 3.NBT.A.2	67
☐ **Tally, then fill in the chart** Tallied what they counted and drew a bar chart.	Tallying, drawing a bar chart and reading it.	—	71
☐ **Follow the number trail** Followed a number trail.	Following a number pattern through a grid.	—	81
☐ **Sort each story by the way it works** Sorted word problems by the way they work.		GRADE 3 3.OA.A.1	85

DRAW AND COLOR — 5 activities

ACTIVITY	PRACTICED	COMMON CORE	PAGES
☐ **Invent the one that ends the chapter** Invented and drew their own.	Making an original drawing from an open prompt.	—	23, 103

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DRAW AND COLOR — 5 activities

	ACTIVITY	PRACTICED	COMMON CORE	PAGES
☐	**Finish the drawing, then color** Finished drawings, then colored them.	Finishing a drawing from what is already there.	—	33
☐	**Color the whole scene** Colored a whole scene.	Coloring a whole scene with their own choices.	—	45
☐	**Color every part** Colored every part of a picture.	Coloring carefully inside each outline.	—	79
☐	**Join the dots, then color** Joined dots in order.	Counting on in order.	—	101

PUZZLES AND CODES — 21 activities

	ACTIVITY	PRACTICED	COMMON CORE	PAGES
☐	**Count the faces, vertices and edges** Counted the faces, vertices and edges of a solid.		—	5
☐	**Crack the secret code** Cracked secret codes.	Matching symbols to letters using a key.	—	7, 37, 87
☐	**Draw the other half** Drew the other half of a picture.	Recognizing a line of symmetry and drawing the matching half.	GRADE 4 4.G.A.3	15
☐	**Work out the sums, then crack the code** Worked out sums to crack codes.	Working out facts, then decoding a message with a key.	GRADE 3 3.OA.C.7	17, 83
☐	**Sort each letter into its box** Sorted things into a grid.	Sorting things by two features at once.	—	21
☐	**Count every triangle** Counted the triangles in a figure.	Seeing shapes inside shapes and counting them in an order.	GRADE 4 4.G.A.2	25
☐	**Find the way through the maze** Found the way through a maze.	Planning a path through a maze.	—	27

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PUZZLES AND CODES

21 activities

	ACTIVITY	PRACTICED	COMMON CORE	PAGES
☐	**Use the clues to work it out** Worked out logic puzzles.	Reasoning from clues, ruling out what cannot be true.	—	29, 91
☐	**Follow the arrow program** Followed an arrow program.	Following a sequence of instructions step by step.	—	35
☐	**Is it always true? Find the example that breaks it** Tested a claim and found what breaks it.	Testing a claim by hunting for an example that breaks it.	—	49
☐	**Is there enough information?** Decided if a problem had enough information.		—	51
☐	**Find the hidden shapes, then color** Found hidden shapes.	Finding and counting named shapes.	—	53
☐	**Fill every row and column** Solved a sudoku.	Reasoning by elimination in a grid.	—	55
☐	**Find what is different** Spotted the differences between two pictures.	Comparing two pictures closely.	—	57
☐	**Work out the clues, one digit a square** Solved a cross-number.		GRADE 4 4.NBT.B.5	63
☐	**Find the hidden things, then color** Searched busy pictures for hidden things.	Searching a busy picture carefully and counting what they find.	—	65, 99
☐	**Sort each letter into the rings** Sorted things into overlapping rings.	Sorting things against two rules at once.	—	69
☐	**Count the cubes** Counted the cubes in a stack.		GRADE 5 5.MD.C.3, 5.MD.C.4	73

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PUZZLES AND CODES

21 activities

	ACTIVITY	PRACTICED	COMMON CORE	PAGES
☐	**Find the words in the grid** Found hidden words in a grid.	Scanning a letter grid for words.	—	75
☐	**Find the letters on the grid** Found letters on grids.	Reading grid references to find letters.	—	77, 97
☐	**Work out the order from the clues** Worked out an order from clues.	Reasoning from clues to the one order that fits them all.	—	89

2 The math warm-ups

After each warm-up, ask: How did you see it? Can you show it another way?

The number line

left-hand pages 4, 38, 54, 68, 84

GOAL	Place fractions and decimals, then compare one of each.
ASK THIS	How many equal parts is the line split into?
COMMON MISTAKE	Counting ticks from 1 instead of 0.
MAKE IT EASIER	Start with halves and quarters between 0 and 1.
MAKE IT HARDER	Ask for a fraction and a decimal on the same line.
COMMON CORE	GRADE 3 3.NF.A.2 GRADE 4 4.NF.C.6 GRADE 5 5.NBT.A.3

Fact families

left-hand pages 6, 24, 42, 56, 90

GOAL	See that three numbers make two times facts and two divisions.
ASK THIS	If you know one times fact, what else do you know?
COMMON MISTAKE	Dividing the smaller number by the bigger one.
MAKE IT EASIER	Make the times fact with counters in rows, then turn it.
MAKE IT HARDER	Make a family with a two-digit number, like 12 × 4.
COMMON CORE	GRADE 3 3.OA.B.5, 3.OA.B.6, 3.OA.C.7 GRADE 4 4.NBT.B.5, 4.NBT.B.6

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Rounding

left-hand pages 6, 30, 64, 80, 92

GOAL	Round a number to the nearest 10 or 100.
ASK THIS	Which end of the line is it closer to?
COMMON MISTAKE	Looking at the wrong digit, or always rounding up.
MAKE IT EASIER	Round to the nearest 10, with numbers under 100.
MAKE IT HARDER	Round the same number to the nearest 10 and 100.
COMMON CORE	GRADE 3 3.NBT.A.1 GRADE 4 4.NBT.A.3

Carrying addition and column subtraction

left-hand pages 8, 36, 58, 70, 90

GOAL	Add or subtract multi-digit numbers, regrouping across columns.
ASK THIS	Which column did you carry into, or borrow from?
COMMON MISTAKE	Forgetting to regroup, or regrouping the wrong column.
MAKE IT EASIER	Line the columns up on squared paper first.
MAKE IT HARDER	Subtract across a zero, like 500 – 247.
COMMON CORE	GRADE 4 4.NBT.B.4

Area and perimeter

left-hand pages 8, 24, 74, 96

GOAL	Area counts the squares inside; perimeter measures the way round.
ASK THIS	Could you find the area without counting every square?
COMMON MISTAKE	For perimeter, counting the edge squares instead of their sides.
MAKE IT EASIER	Count the squares one by one, then each side.
MAKE IT HARDER	Draw a different rectangle with the same area.
COMMON CORE	GRADE 3 3.MD.C.6, 3.MD.D.8 GRADE 4 4.MD.A.3 GRADE 6 6.NS.B.2

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True or false?, missing number and fix it

left-hand pages 10, 22, 44, 60, 88

GOAL	Check number sentences: three at once, both sides, one to fix.
ASK THIS	Which number could you change to make it true?
COMMON MISTAKE	Judging by how close the numbers look, without working.
MAKE IT EASIER	Check the sum with counters or fingers.
MAKE IT HARDER	Write a false sentence for someone else to check.
COMMON CORE	**GRADE 3** 3.NBT.A.2 **GRADE 4** 4.NBT.B.5 **GRADE 5** 5.NBT.B.6 **GRADE 6** 6.EE.B.5

Number machines

left-hand pages 12, 34, 52, 62, 72

GOAL	See the multiplication pattern as repeated groups.
ASK THIS	What does the machine do to every number?
COMMON MISTAKE	Doing the rule forwards when the in number is missing.
MAKE IT EASIER	Try the rule on small numbers first, with objects.
MAKE IT HARDER	Make up a rule for someone else to find.
COMMON CORE	**GRADE 3** 3.OA.C.7, 3.OA.A.4 **GRADE 4** 4.OA.C.5

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Trading tens

left-hand pages 14, 36, 50, 80, 94

GOAL	See that ten of one place make one of the next.
ASK THIS	What did you trade, and what did you get for it?
COMMON MISTAKE	Counting what was traded twice, in both places.
MAKE IT EASIER	Use real things: bundle each ten with a band.
MAKE IT HARDER	Try the same trade with bigger numbers.
COMMON CORE	GRADE 4 4.NF.C.5, 4.NF.C.6 GRADE 5 5.NBT.A.1

Factors and primes

left-hand pages 14, 40

GOAL	Find every pair of numbers that multiplies to the target.
ASK THIS	How do you know you have found every factor?
COMMON MISTAKE	Stopping before checking every number up to the square root.
MAKE IT EASIER	Try dividing by 2, 3 and 5 first.
MAKE IT HARDER	Find the common factors of two numbers instead.
COMMON CORE	GRADE 4 4.OA.B.4

Sharing fairly

left-hand pages 16, 26, 46, 66, 82

GOAL	Divide a number by one digit, naming the remainder.
ASK THIS	What does the leftover number mean here?
COMMON MISTAKE	Dropping the remainder instead of writing it down.
MAKE IT EASIER	Divide a smaller number by the same divisor first.
MAKE IT HARDER	Turn it into a story with full groups and a leftover.
COMMON CORE	GRADE 4 4.NBT.B.6, 4.OA.A.3 GRADE 5 5.NBT.B.6

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Equal parts

left-hand pages 18, 34, 48, 68, 102

GOAL	Fair parts are the same size; fractions count equal parts.
ASK THIS	How can you tell the parts are the same size?
COMMON MISTAKE	Counting the parts without checking they are equal.
MAKE IT EASIER	Fold a paper square in half, then in half again.
MAKE IT HARDER	Find two different ways to cut one shape fairly.
COMMON CORE	GRADE 3 3.NF.A.3.b GRADE 4 4.NF.A.1, 4.NF.C.6 GRADE 5 5.NF.B.4.a

Every rectangle for an area and find the two sides

left-hand pages 18, 76, 94, 98

GOAL	Find every whole-number rectangle for a given perimeter or area.
ASK THIS	How do you know you have found them all?
COMMON MISTAKE	Stopping after the first rectangle found, or counting one twice turned round.
MAKE IT EASIER	Try every width from 1 up, one at a time.
MAKE IT HARDER	Find a rectangle's sides from its area and perimeter together.
COMMON CORE	GRADE 3 3.MD.D.8 GRADE 4 4.MD.A.3

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Arrays

left-hand pages 20, 50, 70, 86, 98

GOAL	See equal rows, and find the total without counting each one.
ASK THIS	Can you count by rows instead of one at a time?
COMMON MISTAKE	Mixing up rows and columns, or counting one twice.
MAKE IT EASIER	Build the rows with small things, then count them.
MAKE IT HARDER	Turn the page sideways: is the total the same?
COMMON CORE	GRADE 3 3.OA.A.1, 3.OA.C.7, 3.OA.A.4, 3.OA.B.5 GRADE 4 4.NBT.B.5

Changing units

left-hand pages 22

GOAL	Change a bigger unit into a smaller one by multiplying.
ASK THIS	How many palms make one cubit? So how many in three?
COMMON MISTAKE	Adding the palms to the cubits before changing them.
MAKE IT EASIER	Change the whole cubits first, then add the palms.
MAKE IT HARDER	Make up a length in cubits and palms; change it to fingers.
COMMON CORE	GRADE 4 4.MD.A.1

Bar charts

left-hand pages 28, 78, 100

GOAL	Read values from a bar chart and compare them.
ASK THIS	How did you work out the difference?
COMMON MISTAKE	Reading the gridline above or below the bar's top.
MAKE IT EASIER	Read one bar's value first.
MAKE IT HARDER	Ask for the total of all the bars.
COMMON CORE	GRADE 3 3.MD.B.3

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Elapsed time

left-hand pages 32, 74, 86, 102

GOAL	Work out how long between two clock times.
ASK THIS	How did you count the minutes and hours?
COMMON MISTAKE	Forgetting to carry an hour past sixty minutes.
MAKE IT EASIER	Round both times to the nearest hour first.
MAKE IT HARDER	Find the start time from the end and the gap.
COMMON CORE	GRADE 3 3.MD.A.1 GRADE 4 4.MD.A.2

Scale tables

left-hand pages 40

GOAL	Use one fixed multiple to fill in a table.
ASK THIS	What do you do to a height to get its shadow?
COMMON MISTAKE	Multiplying when the table needs dividing, or the other way round.
MAKE IT EASIER	Say the rule aloud: the shadow is that many times the height.
MAKE IT HARDER	Make up a new shadow and find its height.
COMMON CORE	GRADE 4 4.OA.A.2

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3 The wonders we met

Point to one and ask: what do you remember about it?

CHAPTER 1 · THE RIVER NILE

- ☐ Sphinx 13
- ☐ Scarab Seal 15

CHAPTER 2 · THE GREAT WALL

- ☐ Terracotta Horse 33

CHAPTER 3 · ROME AND PETRA

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- ☐ Pantheon Dome 53
- ☐ Petra's Treasury 57

CHAPTER 4 · STONES AND GARDENS

- ☐ Stonehenge 65
- ☐ Persian Garden Pools 79

CHAPTER 5 · ALEXANDRIA

- ☐ Harbor Statue 93
- ☐ Lighthouse Fire 99
- ☐ The Lost Lighthouse 101

4 Answers

By chapter: each spread's warm-ups on its left-hand page, then its activity.

CHAPTER 1 · THE RIVER NILE

Pages 4–5 Great Pyramid

Warm-up, p. 4 1 1/4

Riddle, p. 4 A square pyramid, like the Great Pyramid.

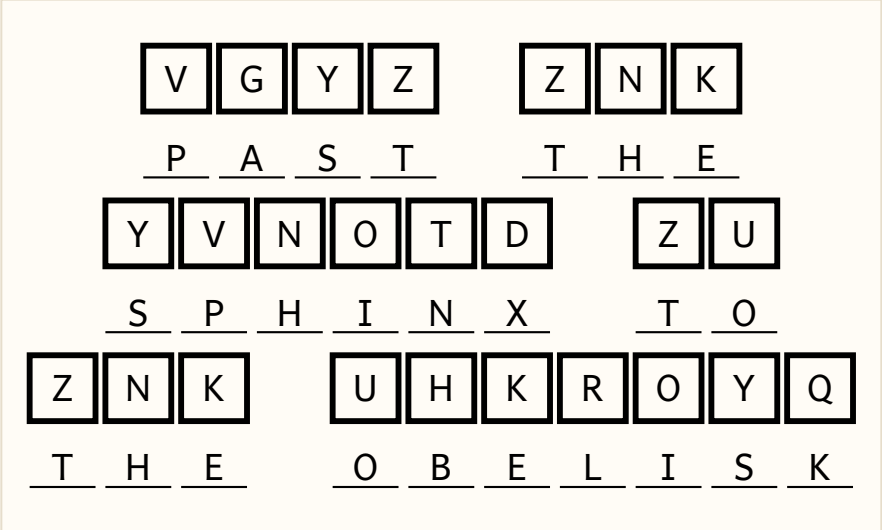
Activity, p. 5 square pyramid 5 faces, 5 vertices, 8 edges. F + V − E is 2 each time. Watch for: the base left out of the faces, the back (dashed) edges missed, or a prism and a pyramid mixed up. A pyramid has n + 1 faces and 2n edges; a prism n + 2 faces and 3n edges.

Pages 6–7 Hieroglyph Wall

Warm-up 1, p. 6 7×9=63 9×7=63 63÷7=9 63÷9=7

Warm-up 2, p. 6 8977 rounds to 8980

Activity, p. 7



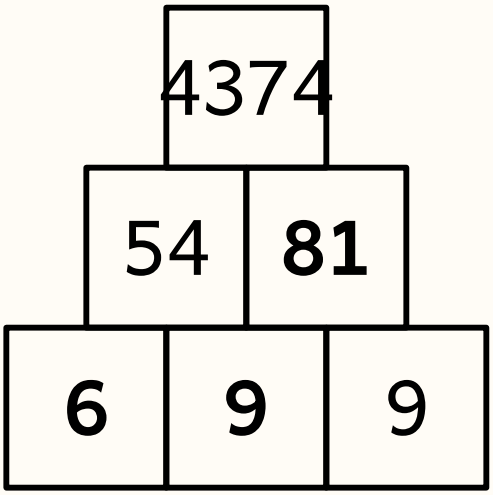
CHAPTER 1 · THE RIVER NILE

Pages 8–9 Pyramid Builders' Ramp

Warm-up 1, p. 8 2745 + 3766 = 6511

Warm-up 2, p. 8 other side 5, perimeter 30

Activity, p. 9



Pages 10–11 Papyrus Boat

Warm-up, p. 10 TRUE: both make XXII

Activity, p. 11 Round 1: water jar, rope, fishing net - $25, change $5
Round 2: water jar, bread, rope, dates - $29, change $3

Pages 12–13 Sphinx

Warm-up 1, p. 12 in 2, out 28; between 14, 21

Warm-up 2, p. 12 A: 2 × 3 = 6, B: 3 × 4 = 12, C: 2 × 8 = 16, D: 4 × 4 = 16, E: 6 × 4 = 24, F: 3 × 8 = 24, G: 2 × 6 = 12

Riddle, p. 12 The Great Sphinx.

Activity, p. 13 yellow 24, orange 16, gray 6, brown 12

Pages 14–15 Scarab Seal

Warm-up 1, p. 14 2 + 0.5 + 0.07 = 2.57

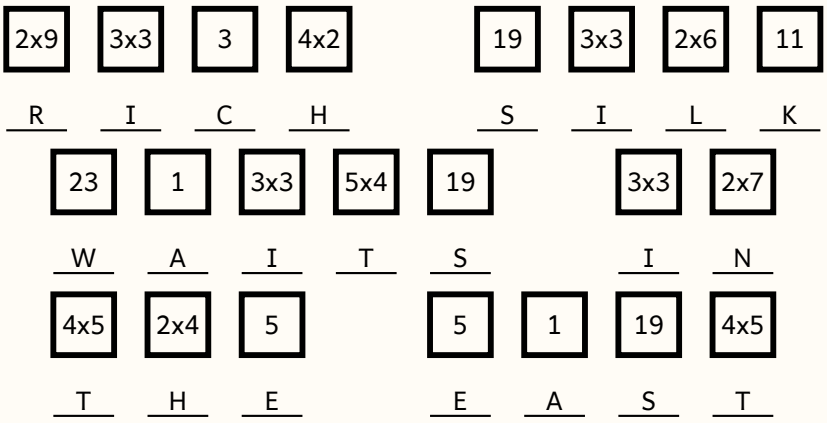
Warm-up 2, p. 14 primes 37,43,47

CHAPTER 1 · THE RIVER NILE

Pages 16–17 Obelisk

Warm-up, p. 16 28 each, 4 left over

Activity, p. 17



Pages 18–19 Abu Simbel

Warm-up 1, p. 18 the bottom strip, 5/10 = 1/2

Warm-up 2, p. 18 1x16 P34, 2x8 P20, 4x4 P16; smallest perimeter 16, 4x4

Riddle, p. 18 17 (66 ÷ 4 = 16 r 2: 16 of you reach 64 feet, so it takes 17 to reach 66).

Activity, p. 19

330 = 300 + 30 + 0
136 = 100 + 30 + 6
601 = 600 + 0 + 1
900 = 900 + 0 + 0

CHAPTER 1 · THE RIVER NILE

Pages 20–21 Temple Columns

Warm-up, p. 20 4 rows (4 × 10 = 40)

Activity, p. 21
A: row 1, column 2
B: row 2, column 1
C: row 1, column 2
D: row 1, column 1
E: row 1, column 2
F: row 2, column 2

Pages 22–23 My Pharaoh's Cartouche

Warm-up 1, p. 22 palms 14, 21; fingers 68, 48

Warm-up 2, p. 22 TRUE

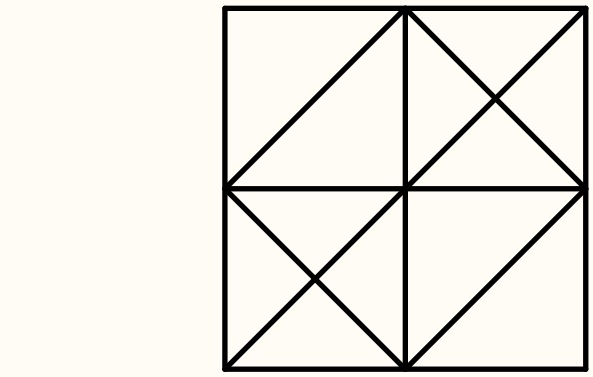
CHAPTER 2 · THE GREAT WALL

Pages 24–25 Watchtower

Warm-up 1, p. 24 other side 7, perimeter 30

Warm-up 2, p. 24 8×7=56 7×8=56 56÷8=7 56÷7=8

Activity, p. 25



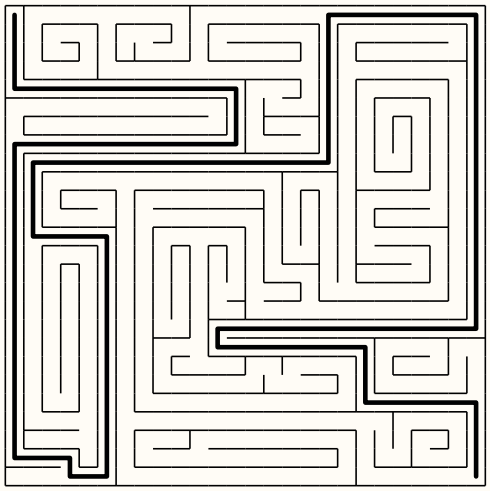
CHAPTER 2 · THE GREAT WALL

Pages 26–27 Great Wall

Warm-up, p. 26 22 each, 2 left over

Riddle, p. 26 A gate.

Activity, p. 27



Pages 28–29 Terracotta Warrior

Warm-up, p. 28 50 more B than D

Activity, p. 29

carver	part	paint
Ming	armor	green
Hua	head	red
Jun	arms	blue

Pages 30–31 Abacus

Warm-up, p. 30 7363 rounds to 7000

Activity, p. 31 Solution 1: step 2, 8 × 4 = 32; step 3, 24 + 32 = 56

Solution 2: step 2, 2 + 3 = 5; step 3, 5 × 2 = 10

CHAPTER 2 · THE GREAT WALL

Pages 32–33 Terracotta Horse

Warm-up, p. 32 end 3:45 p.m.

Riddle, p. 32 A clay horse from the Terracotta Army.

Activity, p. 33 Why might a war horse need its mane cut short and its tail tied in a knot? So the hair can't tangle in the reins, harness or the rider's gear.

Bonus, p. 32
1. 75 horses
2. 125 miles

Pages 34–35 Signal Beacon

Warm-up 1, p. 34 the bottom strip, 9/12 = 3/4

Warm-up 2, p. 34 in 5, out 42; between 45, 36

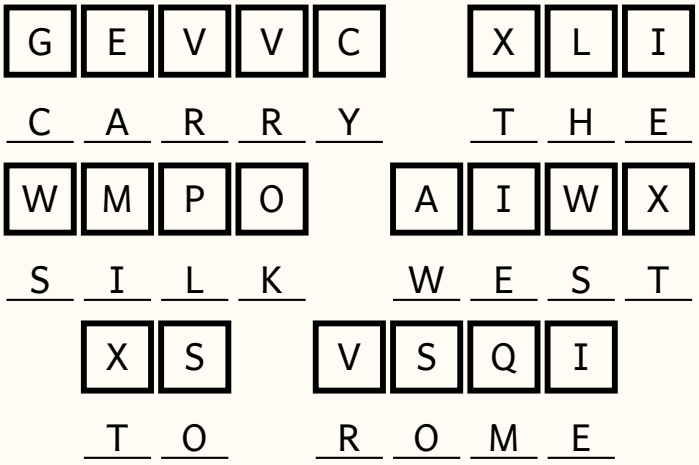
Activity, p. 35 The signal ends at column F, row 4.

Pages 36–37 Silk Road Camel

Warm-up 1, p. 36 2083 + 4719 = 6802

Warm-up 2, p. 36 8 + 0.5 + 0.07 = 8.57

Activity, p. 37



Pages 38–39 Paper Kite

Warm-up, p. 38 1/4

Activity, p. 39
1. 53 strips
2. 15 knots
3. 110 kites
4. 27 sticks

CHAPTER 2 · THE GREAT WALL

Pages 40–41 Bronze Chariot

Warm-up 1, p. 40 height 3; shadow 14

Warm-up 2, p. 40 primes 31,47

Activity, p. 41 The path: 18 ÷ 3 = 6, 16 ÷ 2 = 8, 30 ÷ 10 = 3, 6 ÷ 3 = 2, 15 ÷ 3 = 5, 81 ÷ 9 = 9, 40 ÷ 4 = 10, 28 ÷ 7 = 4, 21 ÷ 3 = 7, then End.

Pages 42–43 The Silk Road Challenge

Warm-up, p. 42 11×12=132 12×11=132 132÷11=12 132÷12=11

Riddle, p. 42 3,000 miles (10 x 300).

Activity, p. 43 Challenge 1: other side 9, perimeter 32
Working: 9 × 7 = 63, 9 + 7 = 16, 16 × 2 = 32
Challenge 2: in 9, out 116; between 81, 108
Challenge 3: 1/4 of 20 = 5

CHAPTER 3 · ROME AND PETRA

Pages 44–45 Colosseum

Warm-up, p. 44 TRUE, TRUE, FALSE (DCCCXXVI)

Pages 46–47 Roman Road

Warm-up, p. 46 61 each, 1 left over

Activity, p. 47 8 ways: crested helmet, round shield, red cloak; crested helmet, round shield, brown cloak; crested helmet, long shield, red cloak; crested helmet, long shield, brown cloak; plain helmet, round shield, red cloak; plain helmet, round shield, brown cloak; plain helmet, long shield, red cloak; plain helmet, long shield, brown cloak
Stretch, a third cloak (green): 12 ways

Pages 48–49 Roman Numerals Sundial

Warm-up, p. 48 2/3 of 15 = 10

Riddle, p. 48 L. XL means 10 less than 50, which is 40.

Activity, p. 49 Claim 1: not always - double 0 is 0
Claim 2: always true.
Claim 3: not always - a rectangle has four sides but is not a square (one answer of several)

CHAPTER 3 · ROME AND PETRA

Pages 50–51 Aqueduct

Warm-up 1, p. 50 19 × 5 = 10 × 5 + 9 × 5 = 95

Warm-up 2, p. 50 5 + 0.9 + 0.02 = 5.92

Activity, p. 51
Problem 1: enough - 458
Problem 2: not enough - how many scrolls were on the shelf to start with
Problem 3: enough - $162
Problem 4: enough - 122
Problem 5: enough - 72
Problem 6: enough - 2:26

Pages 52–53 Pantheon Dome

Warm-up, p. 52 in 6, out 117; between 66, 110

Riddle, p. 52 13 and a half feet (half of 27).

Activity, p. 53
How many roof triangles? 2
How many circles? 1

Pages 54–55 Mosaic Floor

Warm-up, p. 54 0.4

Activity, p. 55

3	**6**	**5**	2	**1**	4
2	**1**	4	**3**	6	5
6	**4**	2	**1**	**5**	**3**
1	5	3	**6**	**4**	2
5	2	6	4	3	**1**
4	**3**	**1**	5	2	6

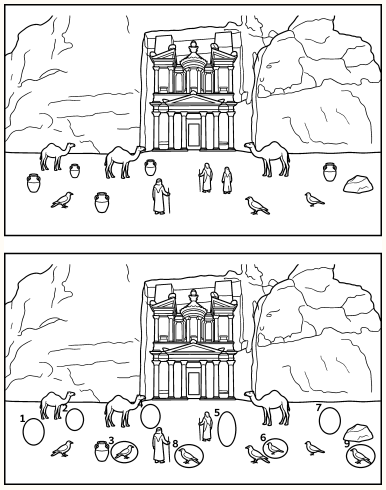
CHAPTER 3 · ROME AND PETRA

Pages 56–57 Petra's Treasury

Warm-up, p. 56

6×8=48 8×6=48 48÷6=8 48÷8=6

Activity, p. 57

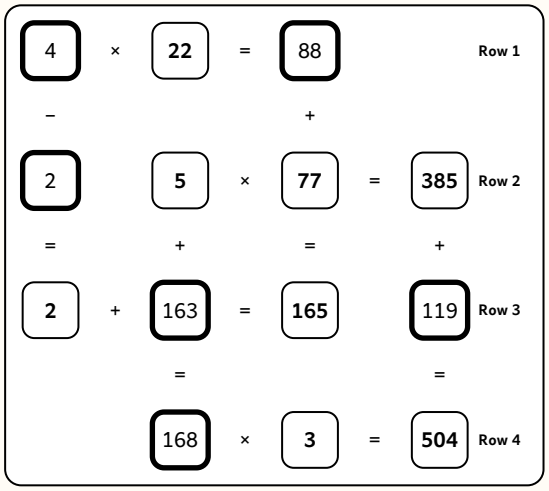


Pages 58–59 Amphora

Warm-up, p. 58

2278 + 5412 = 7690

Activity, p. 59



CHAPTER 3 · ROME AND PETRA

Pages 60–61 Stone Arch

Warm-up, p. 60 VII

Riddle, p. 60 The top stone (the keystone).

Activity, p. 61

$$\begin{array}{cccc} \square & \square & \square & \square \\ 2 & 6 & 3 & 2 \\ + & 3 & 7 & 9 & 7 \\ \hline 6 & 4 & 2 & 9 \end{array} \qquad \begin{array}{cccc} \square & \square & \square & \square \\ 8 & 4 & 2 & 4 \\ - & 4 & 1 & 6 & 9 \\ \hline 4 & 2 & 5 & 5 \end{array}$$

Triangle Arch: 30 triangles: 5 with no line inside, 25 with a line through them.
Wickby on the Roman Road: 1. 17 steps; 2. 35 more stones

Pages 62–63 The Builders' Number Grid

Warm-up, p. 62 in 6, out 17; between 72, 24

Activity, p. 63

1 7	2 5			
3 8	5	4 1	5 4	
	6 3	1	9	
	7 7	4	3	8 4
			9 2	8

CHAPTER 4 · STONES AND GARDENS

Pages 64–65 Stonehenge

Warm-up, p. 64 69016 rounds to 69000

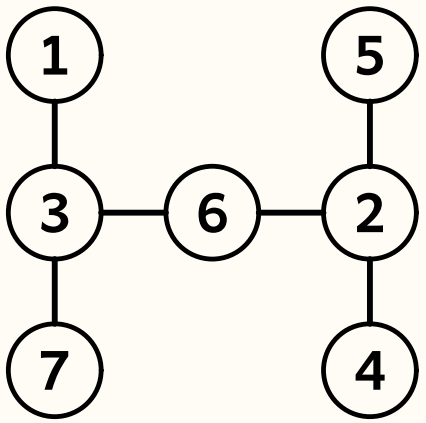
Riddle, p. 64 A trilithon: two standing stones with a lintel stone across the top. Accept a stone doorway or arch.

Activity, p. 65
How many sheep? 5
How many birds? 8
How many rabbits? 3
How many whole clouds? 4
How many in all? 20

Pages 66–67 Standing Stones

Warm-up, p. 66 1034 each, 2 left over

Activity, p. 67



One answer of several: check each line adds to 11

Pages 68–69 Ziggurat and Pyramid

Warm-up 1, p. 68 3/5 = 0.60

Warm-up 2, p. 68 0.13 marked

Activity, p. 69
Round 1, both rings: A
Round 1, the left ring only: E
Round 1, the right ring only: B, C
Round 1, outside both rings: D
Round 2, both rings: F
Round 2, the left ring only: H, I
Round 2, the right ring only: G
Round 2, outside both rings: J

CHAPTER 4 · STONES AND GARDENS

Pages 70–71 Clay Tablet

Warm-up 1, p. 70 9 × 4 = 32 + 4 = 36

Warm-up 2, p. 70 85470 − 33051 = 52419

Activity, p. 71 6 triangles, 4 circles, 8 diamonds, 3 squares; most: diamonds, 5 more than squares

Pages 72–73 Hanging Gardens

Warm-up, p. 72 in 44, 38, 26; between 176, 152, 104

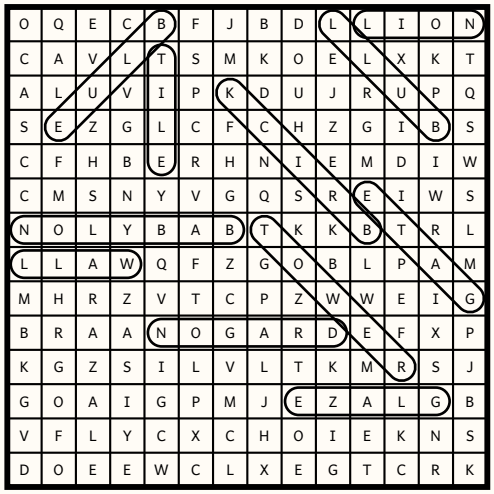
Activity, p. 73 A 7 cubes (1 out of sight), B 8 cubes (1 out of sight), C 12 cubes (2 out of sight). Volume is in cubic units. Watch for: only the visible cubes counted (the supporting cubes under and behind missed), or the visible square faces counted instead of cubes.

Pages 74–75 Babylon's Blue Gate

Warm-up 1, p. 74 other side 14, perimeter 50

Warm-up 2, p. 74 end 2:45 p.m.

Activity, p. 75



CHAPTER 4 · STONES AND GARDENS

Pages 76–77 Ancient Map

Warm-up, p. 76

3 by 8

Activity, p. 77

	A	B	C	D	E	F	G	H	I	J
1	G	G	R	(T)	W	D	F	C	C	E
2	O	N	(H)	X	D	S	T	U	D	M
3	(S)	F	B	D	Z	A	V	W	(U)	T
4	L	N	X	I	X	B	W	K	A	X
5	V	Y	T	A	K	T	U	N	S	E
6	P	J	O	R	W	U	V	L	I	B
7	I	H	P	U	D	B	H	Q	B	T
8	K	O	(E)	D	F	E	(E)	S	O	A
9	C	S	(A)	T	H	Q	P	X	U	O
10	P	E	(R)	(P)	C	U	C	H	L	Q

C8	I3	D10	C2	C10	C9	D1	G8	A3
E	U	P	H	R	A	T	E	S

Pages 78–79 Persian Garden Pools

Warm-up, p. 78

70 more C than D

Activity, p. 79

Count the flowers in each of the 4 garden parts: which parts match, and which half, top or bottom, has more? Top-left 10, top-right 10, bottom-left 8, bottom-right 8. The top half has 4 more.

CHAPTER 4 · STONES AND GARDENS

Pages 80–81 Chariot Wheel

Warm-up 1, p. 80 26469 rounds to 26500

Warm-up 2, p. 80 1 + 0.7 + 0.05 = 1.75

Riddle, p. 80 64 (4 chariots x 2 wheels = 8; 8 x 8 = 64).

Activity, p. 81

(25)	18	58	30	88	115	19	132
(25)	28	67	82	33	67	47	48
(144)	133	67	90	17	8	7	141
(64)	(121)	34	84	43	131	65	120
7	(81)	90	128	101	87	78	126
51	(49)	24	106	142	31	20	87
18	(144)	(25)	48	(121)	(1)	(36)	(4)
37	77	(100)	(36)	(16)	19	88	(121)

Pages 82–83 The Wonders Museum

Warm-up, p. 82 321 each, 4 left over

Activity, p. 83

19	1	3x3	2x6					23	5	19	4x5								
S	A	I	L					W	E	S	T								
				5x4	3x5							4x5	2x4	5					
				T	O							T	H	E					
						7	3x6	5	1	4x5									
						G	R	E	A	T									
				4x2	1	6x3	2	5x3	9x2										
				H	A	R	B	O	R										

CHAPTER 5 · ALEXANDRIA

Pages 84–85 The Harbor

Warm-up, p. 84
0.65 marked

Activity, p. 85
A: Equal groups - 9 x 7 = 63
B: Adding or taking away - 5 + 9 = 14
C: Adding or taking away - 4 - 3 = 1
D: Adding or taking away - 9 - 7 = 2
E: Adding or taking away - 5 + 6 = 11
F: Equal groups - 5 x 6 = 30
G: Equal groups - 3 x 4 = 12
H: Equal groups - 5 x 9 = 45

Bonus, p. 84
1. 140 sacks
2. 40 coins

Pages 86–87 Library Scrolls

Warm-up 1, p. 86
start 12:05 p.m.

Warm-up 2, p. 86
5 × 7 = 40 − 5 = 35

Activity, p. 87

D	R	O		V	S	L	B	K	B	I		Y	P
T	H	E		L	I	B	R	A	R	Y		O	F
			K	V	O	H	K	X	N	B	S	K	
			A	L	E	X	A	N	D	R	I	A	
C	K	I	C		Q	Y		N	Y	G	X		
S	A	Y	S		G	O		D	O	W	N		
D	Y		D	R	O		C	R	S	Z	C		
T	O		T	H	E		S	H	I	P	S		

Pages 88–89 Harbor Ships

Warm-up, p. 88
change CXXVI to CXXV, XII to XIII or CXIII to CXIV

Activity, p. 89
Round 1: grain ship, fishing boat, barge, trader, warship, ferry.
Round 2: warship, barge, grain ship, ferry, fishing boat, trader.

CHAPTER 5 · ALEXANDRIA

Pages 90–91 Sailing In

Warm-up 1, p. 90 12×10=120 10×12=120 120÷12=10 120÷10=12

Warm-up 2, p. 90 30399 + 53837 = 84236

Activity, p. 91

captain	cargo	sail
Ama	cloth	blue
Bek	glass	gold
Cyra	olive oil	green
Dion	grain	white

Pages 92–93 Harbor Statue

Warm-up 1, p. 92 40061 rounds to 40060

Warm-up 2, p. 92 A: 3 × 8 = 24, B: 6 × 6 = 36, C: 9 × 4 = 36, D: 9 × 3 = 27, E: 9 × 2 = 18, F: 6 × 3 = 18, G: 6 × 4 = 24

Activity, p. 93 blue 18, yellow 27, brown 24, gray 36

Pages 94–95 Lighthouse Plans

Warm-up 1, p. 94 4 by 9

Warm-up 2, p. 94 8 + 0.3 + 0.09 = 8.39

Activity, p. 95

Challenge 1: 80976 rounds to 81000

Challenge 2: other side 14, perimeter 58

Working: 14 × 15 = 210, 14 + 15 = 29, 29 × 2 = 58

Challenge 3: total 92

CHAPTER 5 · ALEXANDRIA

Pages 96–97 Mapmaker's Desk

Warm-up, p. 96 other side 13, perimeter 66

Riddle, p. 96 A quill pen.

Activity, p. 97

	A	B	C	D	E	F	G	H	I	J
1	L	D	C	Z	W	E	B	H	Q	E
2	X	L	P	(R)	D	K	K	O	G	(M)
3	O	C	N	R	X	I	G	D	D	Y
4	W	C	E	T	U	S	(T)	M	R	H
5	X	(E)	Y	C	(S)	U	G	X	R	S
6	R	G	W	(O)	M	L	Z	A	Y	J
7	G	V	E	W	E	(N)	(R)	E	X	N
8	H	D	(O)	R	J	L	E	X	G	X
9	Q	Q	E	S	F	A	E	T	A	R
10	(A)	Y	F	C	L	F	A	C	T	P

A10	E5	G4	G7	C8	F7	D6	J2	B5	D2
A	S	T	R	O	N	O	M	E	R

Pages 98–99 Lighthouse Fire

Warm-up 1, p. 98 3 by 16

Warm-up 2, p. 98 8 × 9 = 81 − 9 = 72

Activity, p. 99

How many seagulls? 5
How many ships? 3
How many amphoras? 4
How many rope coils? 3
How many stars? 12
How many fish? 5
How many buckets? 3
How many in all? 35
How many more stars than buckets? 9

Pages 100–101 The Lost Lighthouse

Warm-up, p. 100 10 more C than D

Pages 102–103 My Own Wonder

Warm-up 1, p. 102 1/4 = 0.25

Warm-up 2, p. 102 start 8:30 a.m.

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