

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 Wit 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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wonders and places

17

puzzles

2

inventions of their own

96

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 5 **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			9 activities
ACTIVITY	PRACTICED	COMMON CORE	PAGES
☐ Count and write the number Counted things in the pictures.	Counting a set of objects and recording the total.	—	5
☐ Fill in the missing bricks Filled in a number pyramid.	Finding a missing number from the sum of two others.	—	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, 59, 93
☐ 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
☐ Find every way to combine the choices Found every combination.	Listing every combination in an organized way.	STRETCH · GRADE 7 7.SP.C.8.b	47
☐ 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.MD.B.3, 3.NBT.A.1 GRADE 4 4.OA.C.5	61, 95
☐ Tally, then fill in the chart Tallied what they counted and drew a bar chart.	Tallying, drawing a bar chart and reading it.	—	71

NUMBERS

9 activities

ACTIVITY	PRACTICED	COMMON CORE	PAGES
☐ Follow the number trail Followed a number trail.	Following a number pattern through a grid.	—	81

DRAW AND COLOR

8 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
☐ Color every part Colored every part of pictures.	Coloring carefully inside each outline.	—	25, 79
☐ Finish the drawing, then color Finished drawings, then colored them.	Finishing a drawing from what is already there.	—	33, 73
☐ Draw into the empty space Added their own drawing to a scene.	Adding their own drawing to a scene.	—	39, 85
☐ Draw it step by step Drew step by step.	Building a drawing in ordered steps.	—	41
☐ Color the whole scene Colored a whole scene.	Coloring a whole scene with their own choices.	—	45
☐ Choose the parts, then trace them Chose the parts of a design.	Making design choices and recording them.	—	63
☐ Join the dots, then color Joined dots in order.	Counting on in order.	—	101

PUZZLES AND CODES

20 activities

ACTIVITY	PRACTICED	COMMON CORE	PAGES
☐ 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

PUZZLES AND CODES			20 activities
ACTIVITY	PRACTICED	COMMON CORE	PAGES
☐ Work out the sums, then crack the code Worked out sums to crack a code.	Working out facts, then decoding a message with a key.	—	17
☐ Find the hidden things, then color Searched busy pictures for hidden things.	Searching a busy picture carefully and counting what they find.	—	19, 65, 99
☐ Sort each letter into its box Sorted things into a grid.	Sorting things by two features at once.	—	21
☐ Draw the way through Drew the way through pictures.	Planning a path from start to finish.	—	27, 91
☐ Use the clues to work it out Worked out a logic puzzle.	Reasoning from clues, ruling out what cannot be true.	—	29
☐ Follow the arrow program Followed an arrow program.	Following a sequence of instructions step by step.	—	35
☐ Race a friend around the board Played a board game.	Counting forward and back along a numbered track.	—	43
☐ 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
☐ Find what makes the test unfair Found what made a test unfair.	Spotting what changed, and what must stay the same, in a fair test.	—	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

PUZZLES AND CODES

20 activities

ACTIVITY	PRACTICED	COMMON CORE	PAGES
☐ Find what is different Spotted the differences between two pictures.	Comparing two pictures closely.	—	57
☐ Put the steps in order and write the one missing Put steps in order.	Putting the steps of a real process in order.	—	67
☐ Sort each letter into the rings Sorted things into overlapping rings.	Sorting things against two rules at once.	—	69
☐ 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
☐ Match each one to its plaque Matched plaques to what they tell.	Matching facts to what they describe.	—	83
☐ 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?

True or false?

left-hand pages 4, 16, 30, 48, 64, 90, 94

GOAL	Check a number sentence, not only work out an answer.
ASK THIS	How could you change it 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.4, 4.NBT.B.5 GRADE 5 5.NBT.B.6, 5.OA.A.1 STRETCH · GRADE 6 6.EE.B.5

Trading tens

left-hand pages 4, 18, 34, 54, 74, 88, 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

The number line

left-hand pages 6, 14, 22, 38, 68

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

Equal parts

left-hand pages 6, 10, 20, 56, 64, 82, 96

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.1 GRADE 4 4.NF.C.6 GRADE 5 5.NF.B.4.a STRETCH · GRADE 6 6.RP.A.3.c

Carrying addition

left-hand pages 8, 16, 36, 40, 74, 90, 100

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

Arrays

left-hand pages 8, 18, 22, 54, 60, 78

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.B.5 GRADE 4 4.NBT.B.5

Rounding

left-hand pages 10, 14, 30, 40, 76, 84, 100

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 GRADE 5 5.NBT.A.2, 5.NBT.B.5

Coins

left-hand pages 12, 20, 38

GOAL	Add and compare money to the dollar, in bills and coins.
ASK THIS	How much is each pile worth? How did you add it?
COMMON MISTAKE	Comparing how many bills or coins, not their total value.
MAKE IT EASIER	Add the bills first, then the coins.
MAKE IT HARDER	Ask for the change from a \$20 or a \$50 bill.
COMMON CORE	GRADE 4 4.MD.A.2

Fact families

left-hand pages 24, 28, 52, 72, 80

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

Every rectangle for a perimeter

left-hand pages 24, 32, 58, 68, 80, 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

Area and perimeter

left-hand pages 26, 36, 42, 66, 82, 102

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 STRETCH · GRADE 6 6.NS.B.2, 6.G.A.1

Number machines

left-hand pages 26, 34, 42, 72, 86, 102

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	How many oars would 4 boats need?
COMMON CORE	GRADE 3 3.OA.C.7, 3.OA.A.4 GRADE 4 4.OA.C.5 STRETCH · GRADE 6 6.EE.B.7, 6.EE.C.9

Sharing fairly

left-hand pages 28, 32, 48, 60, 84, 98

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

Elapsed time

left-hand pages 44, 56, 70, 88

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

GRADE 5
5.MD.A.1

Bar charts

left-hand pages 44, 50, 62, 76

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 four bars.
COMMON CORE	GRADE 3 3.MD.B.3 STRETCH · GRADE 6 6.SP.B.5.c

Factors and primes

left-hand pages 46, 52, 66, 78, 92

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 STRETCH · GRADE 6 6.NS.B.4

Decimals and percents

left-hand pages 46, 50, 70, 86, 96

GOAL	See tenths and hundredths as parts of one whole.
ASK THIS	Which digit tells you it is bigger?
COMMON MISTAKE	Comparing decimals like whole numbers, ignoring the point.
MAKE IT EASIER	Line up the decimal points before comparing.
MAKE IT HARDER	Ask for a percent of a bigger amount.
COMMON CORE	STRETCH · GRADE 6 6.RP.A.3.c

3 The wonders we met

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

CHAPTER 1 · THE RIVER NILE

☐ Great Pyramid	5	☐ Scarab Seal	15
☐ Hieroglyph Wall	7	☐ Obelisk	17
☐ Pyramid Builders' Ramp	9	☐ Abu Simbel	19
☐ Papyrus Boat	11	☐ Temple Columns	21
☐ Sphinx	13		

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CHAPTER 3 · ROME AND PETRA

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☐ Sailing In	91	☐ The Lost Lighthouse	101
☐ Harbor Statue	93		

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 1, p. 4	TRUE
Warm-up 2, p. 4	chart 8, 9, 14; $904 - 789 = 115$
Riddle, p. 4	A stone block.
Activity, p. 5	How many pyramids? 3 How many sailboats? 5 How many palm trees? 9 How many cut stone blocks? 7

Pages 6–7 Hieroglyph Wall

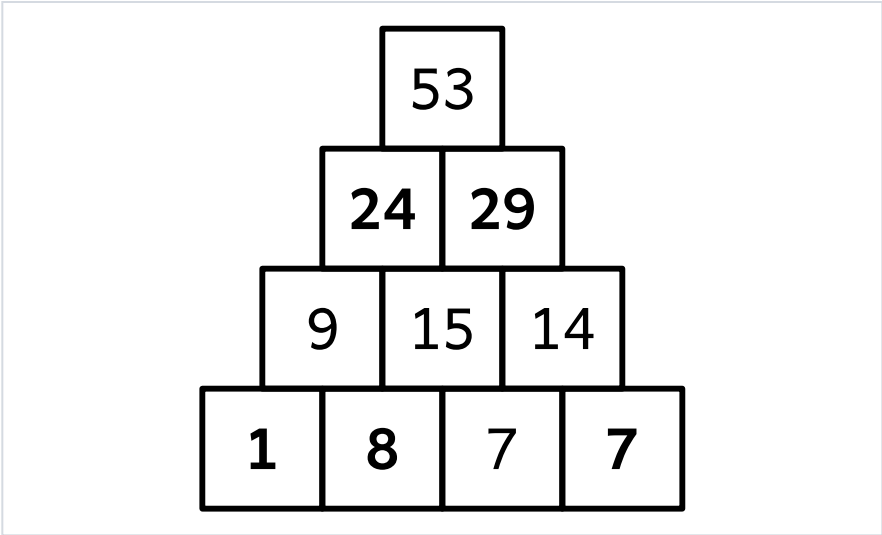
Warm-up 1, p. 6	1/4
Warm-up 2, p. 6	the bottom strip, 3/5
Activity, p. 7	

V	G	V	E	X	A	Y	O	Y
P	A	P	Y	R	U	S	I	S
	G		T	O	R	K		
	A		N	I	L	E		
	V	R	G	T	Z			
	P	L	A	N	T			

CHAPTER 1 · THE RIVER NILE

Pages 8–9 Pyramid Builders' Ramp

Warm-up 1, p. 8 $349 + 592 = 941$
Warm-up 2, p. 8 6 rows of 9, 54 in all
Activity, p. 9



Pages 10–11 Papyrus Boat

Warm-up 1, p. 10 559 rounds to 560
Warm-up 2, p. 10 the top strip, 5/8
Activity, p. 11 Round 1: water jar, fishing net, dates - \$13, change \$9
 Round 2: water jar, bread, rope - \$24, change \$0

Pages 12–13 Sphinx

Warm-up, p. 12 the right pile: 16¢, not 8¢
Riddle, p. 12 Limestone bedrock.
Activity, p. 13 yellow 20, orange 15, grey 25, brown 8

Pages 14–15 Scarab Seal

Warm-up 1, p. 14 1/2
Warm-up 2, p. 14 308 rounds to 310

CHAPTER 1 · THE RIVER NILE

Pages 22–23 My Pharaoh's Cartouche

Warm-up 1, p. 22

3/4

Warm-up 2, p. 22

10 rows of 10, 100 in all

CHAPTER 2 · THE GREAT WALL

Pages 24–25 Watchtower

Warm-up 1, p. 24

$4 \times 8 = 32$ $8 \times 4 = 32$ $32 \div 4 = 8$ $32 \div 8 = 4$

Warm-up 2, p. 24

1x16 P34, 2x8 P20, 4x4 P16; smallest perimeter 16, 4x4

Activity, p. 25

If the 2 hidden sides of the tower match the 2 you can see, how many big arches are there? 12

Pages 26–27 Great Wall

Warm-up 1, p. 26

other side 7, perimeter 30

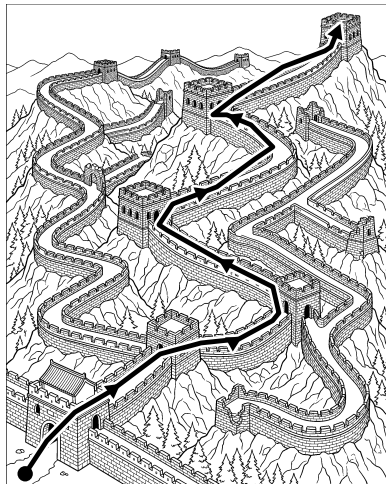
Warm-up 2, p. 26

in 4, out 2; between 36, 9

Riddle, p. 26

A gate.

Activity, p. 27



CHAPTER 2 · THE GREAT WALL**Pages 28–29** Terracotta Warrior

Warm-up 1, p. 28

28 each, 0 left over

Warm-up 2, p. 28

 $9 \times 8 = 72$ $8 \times 9 = 72$ $72 \div 9 = 8$ $72 \div 8 = 9$

Activity, p. 29

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

Pages 30–31 Abacus

Warm-up 1, p. 30

6907 rounds to 6910

Warm-up 2, p. 30

FALSE: $XI + XXVII = XXXVIII$

Activity, p. 31

Solution 1: step 2, $8 \times 4 = 32$; step 3, $24 + 32 = 56$ Solution 2: step 2, $8 + 6 = 14$; step 3, $14 \times 2 = 28$ **Pages 32–33** Terracotta Horse

Warm-up 1, p. 32

1x12 P26, 2x6 P16, 3x4 P14; smallest perimeter 14, 3x4

Warm-up 2, p. 32

99 each, 1 left over

Riddle, p. 32

A saddle.

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.

Pages 34–35 Signal Beacon

Warm-up 1, p. 34

in 3, out 4; between 21, 7

Warm-up 2, p. 34

 $1 + 0.7 + 0.05 = 1.75$

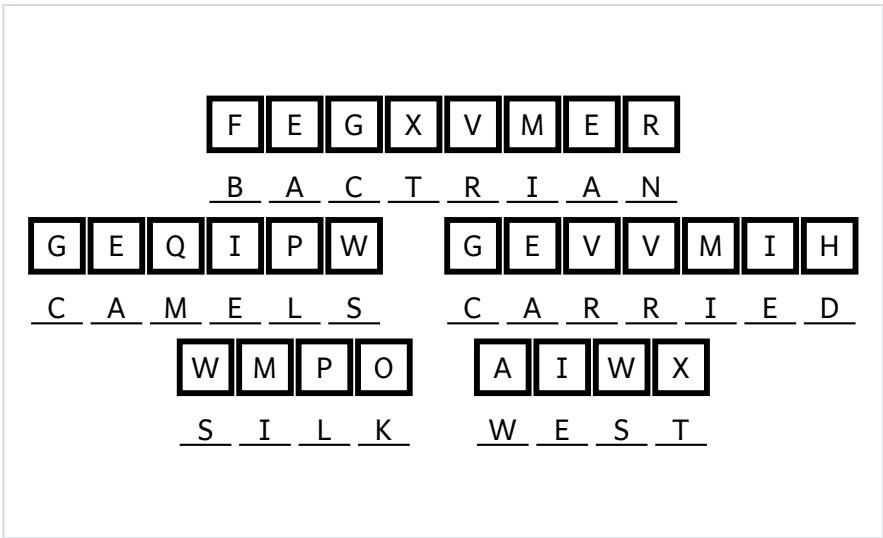
Activity, p. 35

The signal ends at column F, row 4.

CHAPTER 2 · THE GREAT WALL

Pages 36–37 Silk Road Camel

- Warm-up 1, p. 36
- Warm-up 2, p. 36
- Activity, p. 37
- other side 5, perimeter 18
- $9191 - 5442 = 3749$



Pages 38–39 Paper Kite

- Warm-up 1, p. 38
- Warm-up 2, p. 38
- Activity, p. 39
- the right pile: \$1.51, not \$1.02
- 1/2 marked
- Count the towers: if each takes 2 minutes to light the next, when is the 4th tower lit?
- 6 minutes (3 gaps x 2 minutes)

Pages 40–41 Bronze Chariot

- Warm-up 1, p. 40
- Warm-up 2, p. 40
- 3019 rounds to 3000
- $4375 + 2458 = 6833$

Pages 42–43 The Silk Road Race

- Warm-up 1, p. 42
- Warm-up 2, p. 42
- Riddle, p. 42
- in 4, out 47; between 32, 40
- other side 5, perimeter 30
- Silk.

CHAPTER 3 · ROME AND PETRA

Pages 44–45 Colosseum

Warm-up 1, p. 44 end 1:45 pm
 Warm-up 2, p. 44 mean 26

Pages 46–47 Roman Road

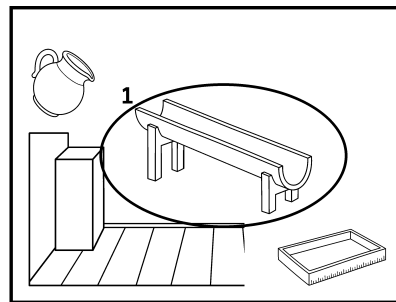
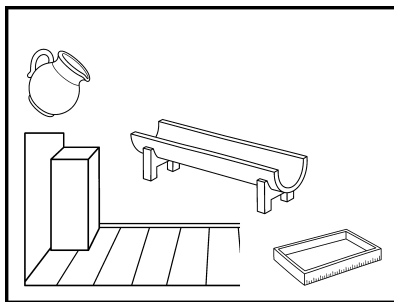
Warm-up 1, p. 46 1,2; GCF 2
 Warm-up 2, p. 46 10% of 60 is 6
 Activity, p. 47 8 ways: crested helmet, round shield, red cloak; crested helmet, round shield, brown cloak; crested helmet, long shield, red cloak; crested helmet, long shield, brown cloak; plain helmet, round shield, red cloak; plain helmet, round shield, brown cloak; plain helmet, long shield, red cloak; plain helmet, long shield, brown cloak

Pages 48–49 Roman Numerals Sundial

Warm-up 1, p. 48 32 each, 0 left over
 Warm-up 2, p. 48 TRUE
 Riddle, p. 48 Zero.
 Activity, p. 49 Claim 1: always true.
 Claim 2: not always - double 0 is 0

Pages 50–51 Aqueduct

Warm-up 1, p. 50 10% of 100 is 10
 Warm-up 2, p. 50 mean 19
 Activity, p. 51



Fair - only one thing changed
 What changed: slope
 What should be the same: jar, tray

CHAPTER 3 · ROME AND PETRA

Pages 52–53 Pantheon Dome

- Warm-up 1, p. 52 1,2,4; GCF 4
- Warm-up 2, p. 52 $8 \times 9 = 72$ $9 \times 8 = 72$ $72 \div 8 = 9$ $72 \div 9 = 8$
- Riddle, p. 52 Rain.
- Activity, p. 53 How many triangles? 2
How many circles? 1

Pages 54–55 Mosaic Floor

- Warm-up 1, p. 54 $19 \times 5 = 10 \times 5 + 9 \times 5 = 95$
- Warm-up 2, p. 54 $8 + 0.3 + 0.09 = 8.39$
- 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

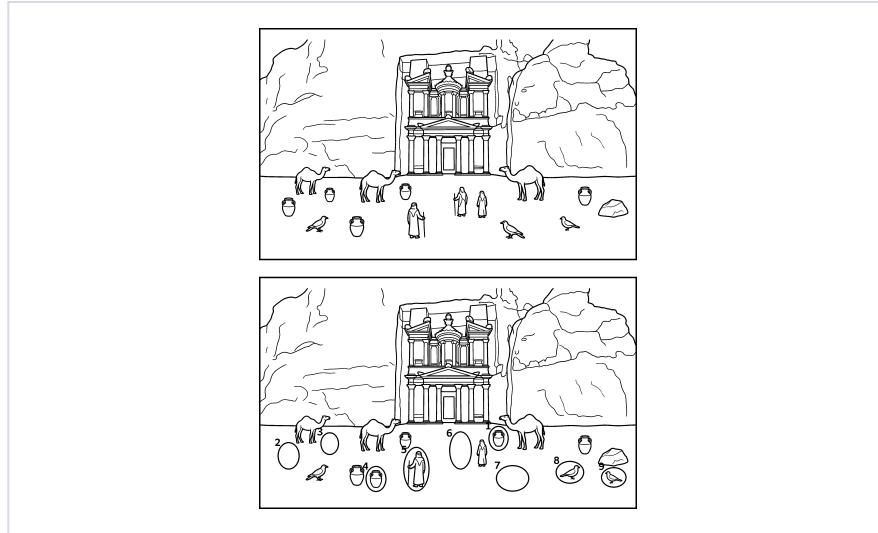
Warm-up 1, p. 56

end 1:30 pm

Warm-up 2, p. 56

$1/3$ of 15 = 5

Activity, p. 57



Pages 58–59 Amphora

Warm-up, p. 58

1x11, 2x10, 3x9, 4x8, 5x7, 6x6; biggest 6x6, smallest 1x11

Activity, p. 59

red 24, yellow 12, orange 35, brown 10

Pages 60–61 Stone Arch

Warm-up 1, p. 60

$13 \times 8 = 10 \times 8 + 3 \times 8 = 104$

Warm-up 2, p. 60

202 each, 2 left over

Riddle, p. 60

The top stone (the keystone).

Activity, p. 61

Challenge 1: other side 4, perimeter 18

Working: $4 \times 5 = 20$, $4 + 5 = 9$, $9 \times 2 = 18$

Challenge 2: in 11, out 30; between 99, 36

Challenge 3: $2/4$ of 16 = 8

Pages 62–63 Build Your Own Wonder

Warm-up, p. 62

mean 26

CHAPTER 4 · STONES AND GARDENS

Pages 64–65 Stonehenge

Warm-up 1, p. 64	$\frac{1}{2} = 0.50$
Warm-up 2, p. 64	FALSE: LXXI + CXIII = CLXXXIV, LXXII + CXI = CLXXXIII
Riddle, p. 64	The sun (the midsummer sunrise).
Activity, p. 65	How many sheep? 5 How many birds? 8 How many rabbits? 3 How many clouds? 5

Pages 66–67 Standing Stones

Warm-up 1, p. 66	other side 13, perimeter 66
Warm-up 2, p. 66	1,2,4; GCF 4
Activity, p. 67	Order: 1) Dig a deep hole with one sloping side.; 2) Drag the stone to the hole on wooden rollers.; 3) Push the end of the stone over the edge of the hole.; 4) Pull on ropes until the stone slides down into the hole.; 5) Haul the stone upright with ropes and a wooden frame. Missing (step 6): Pack stones and earth into the hole around its base. (accept any sensible step that does the same job)

Pages 68–69 Ziggurat and Pyramid

Warm-up 1, p. 68	0.13 marked
Warm-up 2, p. 68	3 by 12
Activity, p. 69	Round 1, both rings: A Round 1, the left ring only: C, E Round 1, the right ring only: D Round 1, outside both rings: B Round 2, both rings: F, J Round 2, the left ring only: G Round 2, the right ring only: H Round 2, outside both rings: I

Pages 70–71 Clay Tablet

Warm-up 1, p. 70	start 2:25 pm
Warm-up 2, p. 70	25% of 40 is 10
Activity, p. 71	6 triangles, 4 circles, 8 diamonds, 3 squares; most: diamonds, 5 more than squares

CHAPTER 4 · STONES AND GARDENS

Pages 72–73 Hanging Gardens

Warm-up 1, p. 72

$$9 \times 12 = 108 \quad 12 \times 9 = 108 \quad 108 \div 9 = 12 \quad 108 \div 12 = 9$$

Warm-up 2, p. 72

in 3, 41, 37; between 21, 287, 259

Activity, p. 73

Count the planted levels: if each takes 25 steps to climb, how many steps reach the top? 125 (5 levels x 25 steps)

Pages 74–75 Babylon's Blue Gate

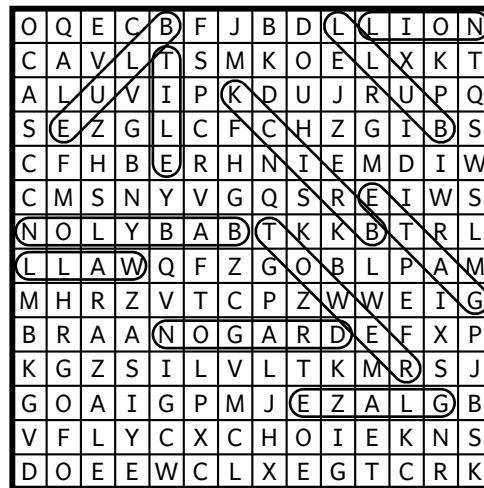
Warm-up 1, p. 74

$$43126 + 33256 = 76382$$

Warm-up 2, p. 74

$$1 + 0.6 + 0.06 = 1.66$$

Activity, p. 75



CHAPTER 4 · STONES AND GARDENS

Pages 76–77 Ancient Map

Warm-up 1, p. 76 median 24
Warm-up 2, p. 76 49073 rounds to 49070
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 1, p. 78 1,3; GCF 3
Warm-up 2, p. 78 $6 \times 8 = 54 - 6 = 48$
Activity, p. 79 Count the flowers in each of the 4 garden parts: which parts match, and which half 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

3 by 16

Warm-up 2, p. 80

$9 \times 10 = 90$ $10 \times 9 = 90$ $90 \div 9 = 10$ $90 \div 10 = 9$

Riddle, p. 80

64 (4 chariots $\times$ 2 wheels = 8; $8 \times 8 = 64$).

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 1, p. 82

other side 19, perimeter 54

Warm-up 2, p. 82

$1/5 = 0.20$

Activity, p. 83

Plinth, then the plaque it belongs to:

- 6 Held more than 50,000 people
- 2 A lion's body with a person's head
- 9 Nobody has found where it stood
- 4 Built and rebuilt over 2,000 years
- 8 Lines up with the midsummer sunrise
- 1 Built for the pharaoh Khufu
- 7 Carved straight into a rose-red cliff
- 3 Four giant seated statues sit by its door
- 5 Thousands of clay soldiers, no two faces alike

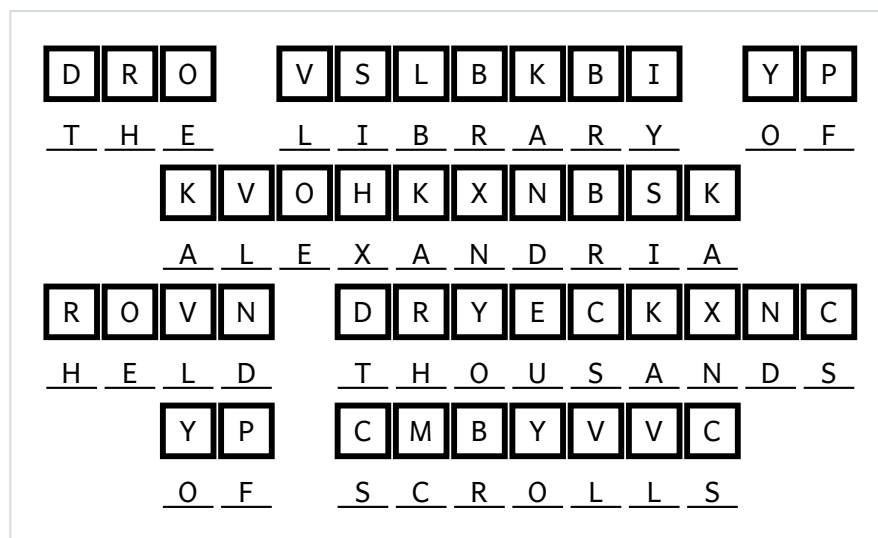
CHAPTER 5 · ALEXANDRIA

Pages 84–85 The Harbor

Warm-up 1, p. 84	about 6000 (288 rounds to 300, 21 rounds to 20)
Warm-up 2, p. 84	1575 each, 4 left over
Activity, p. 85	Why does the lighthouse, over 300 feet tall, look no bigger than a ship here? It is much farther away, and far-off things look smaller.

Pages 86–87 Library Scrolls

Warm-up 1, p. 86	50% of 80 is 40
Warm-up 2, p. 86	in 14, 12, 7; between 98, 84, 49
Activity, p. 87	



Pages 88–89 Harbor Ships

Warm-up 1, p. 88	start 9:50 am
Warm-up 2, p. 88	$8 + 0.7 + 0.05 = 8.75$
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

$$41427 + 57575 = 99002$$

Warm-up 2, p. 90

FALSE: $XX + CDL = CDLXX$, $LXX + CDX = CDLXXX$

Activity, p. 91



Pages 92–93 Harbor Statue

Warm-up, p. 92

1,3; GCF 3

Activity, p. 93

blue 18, yellow 45, brown 54, grey 24

Pages 94–95 Lighthouse Plans

Warm-up 1, p. 94

TRUE: both make CDL

Warm-up 2, p. 94

$$3 + 0.3 + 0.03 = 3.33$$

Activity, p. 95

Challenge 1: area 26, perimeter 22

$$\text{Working: } 2 \times 5 = 10, 4 \times 4 = 16, 10 + 16 = 26$$

Challenge 2: mean 23

Challenge 3: about 1610 (928 rounds to 930, 679 rounds to 680)

CHAPTER 5 · ALEXANDRIA

Pages 96–97 Mapmaker's Desk

Warm-up 1, p. 96

 $5/10 = 50\%$

Warm-up 2, p. 96

10% of 140 is 14

Riddle, p. 96

A pair of dividers.

Activity, p. 97

	A	B	C	D	E	F	G	H	I	J
1	O	F	T	S	N	C	Q	B	T	H
2	G	J	P	F	H	R	O	C	O	⓪
3	F	S	Ⓛ	D	P	ⓔ	P	C	C	O
4	ⓗ	Ⓢ	L	Ⓤ	F	O	D	F	J	B
5	H	S	G	E	F	W	L	A	G	C
6	A	K	W	D	ⓗ	Ⓢ	F	P	J	N
7	B	Ⓢ	H	J	ⓖ	L	A	E	U	O
8	U	E	M	H	H	I	D	Z	E	G
9	S	A	A	F	P	D	Q	A	G	A
10	P	Q	N	I	H	D	E	Q	B	E
	C3	B4	E7	A4	B7	E6	J2	D4	F6	F3
	L	I	G	H	T	H	O	U	S	E

Pages 98–99 Lighthouse Fire

Warm-up 1, p. 98

3 by 32

Warm-up 2, p. 98

502 each, 0 left over

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

Pages 100–101 The Lost Lighthouse

Warm-up 1, p. 100

 $30000 - 10144 = 19856$

Warm-up 2, p. 100

about 54000 (554 rounds to 600, 91 rounds to 90)

Riddle, p. 100

A century.

Pages 102–103 My Own Wonder

Warm-up 1, p. 102

area 14

Warm-up 2, p. 102

in 15, 7, 11; between 120, 56, 88

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The word

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