

YEAR

7

AfterMaths

Workbook

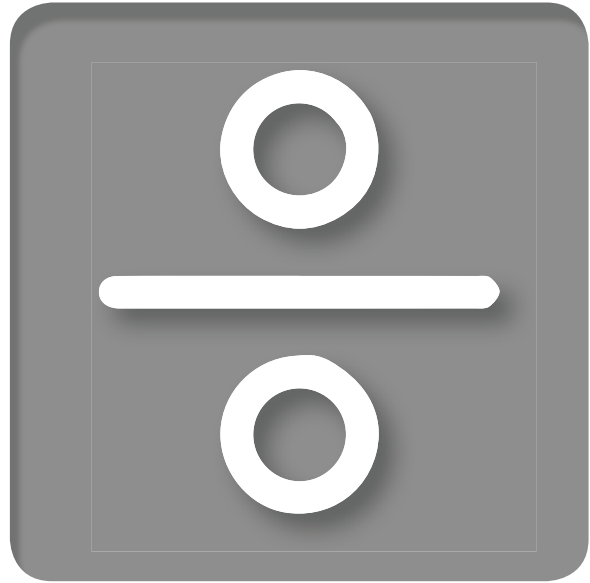
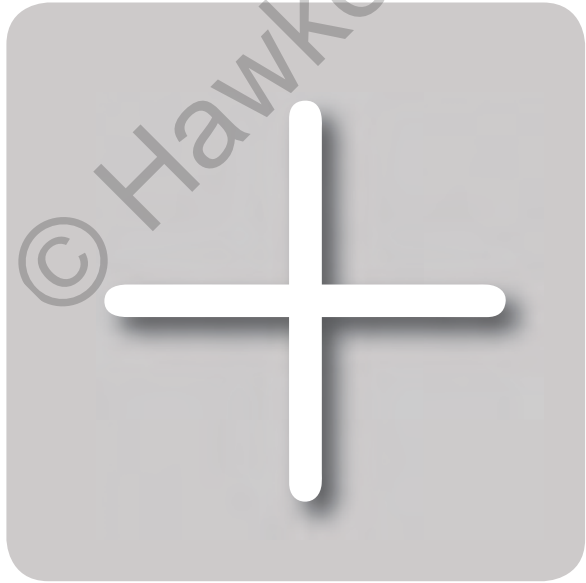
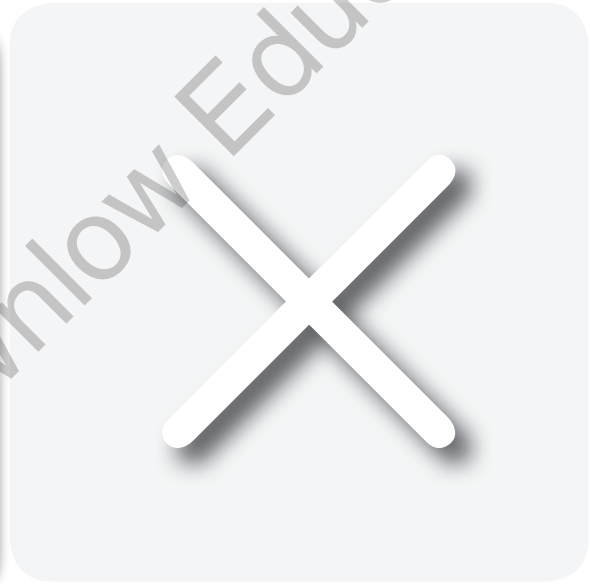
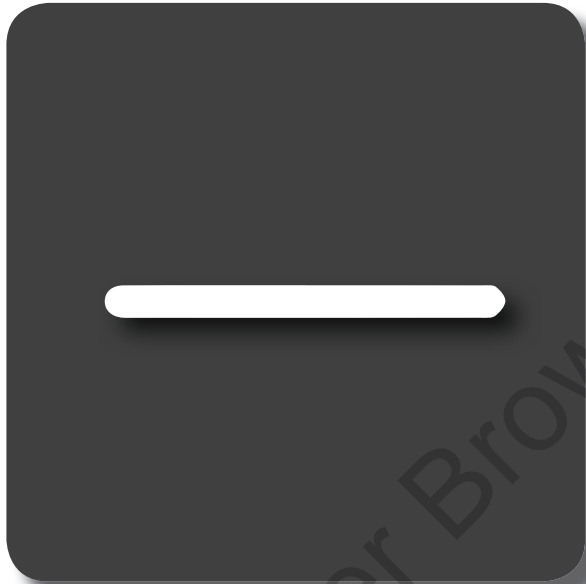


TABLE OF CONTENTS

ACTIVITY	Page	ACTIVITY	Page
"Decimation"	2	Astronomical Angles	20
Evens, Odds and Ends	3	Toothpick Testers	21
Skill Builders 1	4	Skill Builders 4	22
Think It Over	5	Symmetry Squares	23
Dominoes and Definitions	6	Five Square.....	24
Get a Round	7	Geometry Cube.....	25
Number Puzzles	8	Ball Toss	26
The Magic of Numbers.....	9	William's Chemistry Class	27
Skill Builders 2	10	Skill Builders 5	28
Subtraction by Addition.....	11	To the Eights.....	29
The Bizarre World of Numbers.....	12	A Perfect Set-Up	30
Break the Bank	13	Marble Mayhem.....	31
It's a Date	14	Box Score	32
Perilous Patterns	15	It's in the Book	33
Skill Builders 3	16	Skill Builders 6	34
Measurement Log	17	Olympic All-Stars	35
Time on Your Hands.....	18	It's All Greek to Me.....	36
Rules of Thumb	19	That's Entertainment	37

Dear Student,

Welcome to *AfterMaths*[™], a program that allows you to explore mathematics. Inside this book are 36 activities. In these activities, you will play maths games, conduct experiments, solve problems and perform "maths magic".

AfterMaths is designed to allow you to work alone, with a partner or in a small group. You will try a variety of activities. By doing these activities, you will develop your maths skills and look at maths in new ways. You also will find that maths is part of your everyday life.

Some activities use skills that you already know. Other activities add to known skills. Still other activities provide challenges. The goal is always to have fun and to learn at the same time.

A famous man named Galileo once said that mathematics is the alphabet in which the universe was created. So, enjoy the activities and begin learning that "alphabet".

You may want to have materials such as the following on hand: pencils and erasers, scrap paper, a calculator and a ruler.

This *AfterMaths* book was prepared for students by Christopher Forest.

Designed by Jamie Ruh.

“DECIMATION”

1. Here are the top ten finishers in the qualifying heat of a 200-metre race. Unfortunately, the computerised printout cannot be read. Use the clues in brackets to determine each runner's time. The first runner's time is listed for you.

Daniel Sanders:

Daniel finished at 23.71 seconds.

Gary Plumb: (Gary's time was 0.32 seconds greater than Daniel's time.)

Ty Jefferson: (Ty had the same whole-number unit of time as Gary. Ty's decimal unit of time was twice that of Gary's.)

Martin Grandoni: (Martin finished 0.46 seconds faster than Ty.)

Allan Ashburn: (Allan finished with the same whole-number unit of time as Ty and Gary. His decimal unit of time was equal to one third of Martin's decimal unit of time.)

Henry Manolo: (Henry finished 0.02 seconds faster than Allan.)

Liam O'Donnell: (Liam finished with the same whole-number unit of time as Daniel. His decimal unit of time was twice as much as Henry's decimal unit of time plus 0.11.)

Jordan Amain: (Jordan finished 0.12 seconds faster than Liam.)

Nathan Birnbaum: (Nathan finished 0.1 second after Jordan.)

Abel Benton: (Abel finished 0.36 seconds faster than Nathan.)

2. Below, write each runner's name next to his finishing position in the qualifying heat. The first one has been done for you.

Qualifying-Heat Finishers

First Place: Abel

Sixth Place: _____

Second Place: _____

Seventh Place: _____

Third Place: _____

Eighth Place: _____

Fourth Place: _____

Ninth Place: _____

Fifth Place: _____

Tenth Place: _____

3. In part 1 above, put a tick next to the name of each of the top six finishers; those runners will go on to the final race!

EVENS, ODDS AND ENDS

That's Odd

What do the odd numbers in each box have in common?

33	69	129
27	3	51

BOX ONE

9	19	11	21
15	17	23	13

BOX TWO

49	81	121
9	25	1

BOX THREE

1. BOX ONE: _____
2. BOX TWO: _____
3. BOX THREE: _____

We're Even

For each item, determine what three consecutive even numbers less than 50 are addends that produce the sum shown on the right.

1. _____ + _____ + _____ = 132
2. _____ + _____ + _____ = 96
3. _____ + _____ + _____ = 78
4. _____ + _____ + _____ = 60
5. _____ + _____ + _____ = 42
6. _____ + _____ + _____ = 24

Name That Number

Write the number described in each paragraph.

1. I am a four-digit number. My first digit is an odd number that is $\frac{1}{9}$ the size of my last digit. My middle digits make up the smallest two-digit number divisible by 3.
What number am I? _____
2. I am a five-digit number. My first digit is the largest single-digit even number. My last digit is the smallest one-digit number that evenly divides into my first digit. My middle three digits make up the number that represents 12 squared.
What number am I? _____
3. I am a six-digit number. My first digit is $\frac{1}{2}$ of my last digit. My last digit is a one-digit number divisible evenly by itself, 1, 2 and 3. My middle digits make up the amount represented by the number of cents in \$50, minus 25 cents.
What number am I? _____

AfterMaths

TEACHER GUIDE

YEAR

7

Dear Teacher,

Welcome to *AfterMaths*[™]. This program is designed to engage students in using a variety of maths skills that will be important to them as developmental learners and as thinkers in the years ahead. Students will use critical thinking, problem solving and computation skills as they complete the 36 activities in the student book.

The activities in the *AfterMaths* student book are based on seven concepts. These concepts are numeration, number theory, measurement, geometry, pre-algebra, data interpretation and logical reasoning. A list of activities and the skills covered appears on the following page.

The activities in the *AfterMaths* student book may be applied in various ways. They may be used to supplement and reinforce classroom lessons. They may be used to extend or enrich daily lessons. Or, they may be used to provide challenges to students who enjoy experimenting with maths. The activities are designed for students to work on their own, in pairs or in small groups at their own pace.

The activities provide a variety of experiences for students, including writing, computing, experimenting, completing small projects, conducting research and playing games. A light globe icon (💡) marks challenging creative-thinking items. Students will become aware that mathematics is not just reserved for the classroom; it is a vital part of the world around them.

Try to preview all 36 activities in the student book before assigning particular activities. Students may complete the activities in any order that fits your needs. Note that some maths experiments require the use of basic hands-on materials such as calculators, number cubes, playing cards, dominoes and rulers.

AfterMaths, Year 7 is designed specifically for students in Year 7. But, the activities can be used with advanced mathematics students in Year 6, as well as with students who require mathematics skills reinforcement in Year 8.

Enjoy the activities. Encourage students to do as many as possible. Galileo once said that mathematics is the alphabet in which the universe was created. So, let's begin to learn that alphabet.

Author: Christopher Forest

Editor: Dale Lyle

Designer: Jamie Ruh

TABLE OF CONTENTS

Activity	Page	Activity	Page
"Decimation".....	3	Time on Your Hands.....	5
Ordering decimals (N)		Solving a puzzle (LR)	
Evens, Odds and Ends.....	3	Measuring capacity (M)	
Comparing odd numbers (N)		Rules of Thumb.....	5
Determining consecutive even numbers (N)		Comparing standard and non-standard units (M)	
Solving a puzzle (LR)		Astronomical Angles.....	5
Skill Builders 1.....	3	Identifying angles (G)	
Solving a puzzle (LR)		Toothpick Testers.....	6
Solving a word problem (LR)		Modelling geometric shapes (G)	
Exploring place value (N)		Skill Builders 4.....	6
Think It Over.....	3	Solving a puzzle (LR)	
Solving word problems (LR)		Identifying geometric shapes (G)	
Dominoes and Definitions.....	4	Determining size, shape and area (G)	
Solving a magic square (LR)		Symmetry Squares.....	6
Defining a prefix (N)		Constructing figures to show symmetry (G)	
Get a Round.....	4	Five Square.....	6
Ordering and rounding whole numbers (N)		Constructing shapes with square units (G)	
Number Puzzles.....	4	Geometry Cube.....	7
Performing multiple operations (NT)		Comparing figures on a cube (G)	
Comparing fractions (N)		Baseball Toss.....	7
Comparing whole numbers (N)		Determining missing numbers (PA)	
The Magic of Numbers.....	4	Constructing a number game (PA)	
Solving a magic square (LR)		William's Chemistry Class.....	7
Performing multiple operations (NT)		Determining unknown units of weight and capacity (PA)	
Investigating probability (PA)		Skill Builders 5.....	7
Skill Builders 2.....	4	Performing multiple operations (NT)	
Performing multiple operations (NT)		Identifying patterns (PA)	
Using a calculator to solve problems (NT)		Determining missing numbers (PA)	
Solving word problems (LR)		To the Eights.....	8
Subtraction by Addition.....	4	Creating open sentences (PA)	
Performing multiple operations (NT)		A Perfect Set-Up.....	8
The Bizarre World of Numbers.....	4	Interpreting data on a Venn diagram (DI)	
Comparing number sequences (NT)		Creating a Venn diagram	
Identifying number patterns (PA)		Marble Mayhem.....	8
Solving word problems (LR)		Solving probability problems (PA)	
Break the Bank.....	4	Box Score.....	8
Performing multiple operations (NT)		Recording data on a table (DI)	
It's a Date.....	5	It's in the Book.....	8
Using a calendar to find number patterns (NT)		Analysing data in a phone listing (DI)	
Perilous Patterns.....	5	Skill Builders 6.....	8
Solving a puzzle (LR)		Interpreting data on a column graph (DI)	
Study Shapes (LR)		Olympic All-Stars.....	8
Skill Builders 3.....	5	Determining range, median and mean from a table (DI)	
Toothpick terror (LR)		It's All Greek to Me.....	8
Identifying number patterns (PA)		Using a number system (N)	
Solving a word problem (LR)		That's Entertainment.....	8
Measurement Log.....	5	Collecting data and constructing a circle graph (DI)	
Estimating and measuring objects (M)			
Describing units of length (M)			

N: Numeration
NT: Number Theory
M: Measurement

G: Geometry
PA: Prealgebra
DI: Data Interpretation

LR: Logical Reasoning