


AFTER MATHS TEACHERS GUIDE BOOK F

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 thirty-six lessons in the student book.

The activities in the *AfterMaths* student book are based on seven concepts. These concepts are numeration, number theory, measurement, geometry, prealgebra, 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. An icon  marks challenging creative-thinking items. Students will become aware that mathematics is not reserved just for the classroom; it is a vital part of their world.

Try to preview all thirty-six activities in the student book before assigning particular activities. Students can complete the activities in any order that suits 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, Book F is designed specifically for students in grade six. However, the activities can be used with advanced mathematics students in grade five, as well as with students who require mathematics skills reinforcement in year seven.

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.

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HAWKER BROWNLOW
E D U C A T I O N

ISBN 1 86401 928 X

Code #3705

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Originally published by Curriculum Associates, Inc

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N: Numeration
 NT: Number Theory
 M: Measurement

G: Geometry
 PA: Prealgebra
 DI: Data Interpretation

LR: Logical Reasoning

Answers

'DECIMATION' (SB page 2)

- √ Diego: 23.71 seconds — 6th place
 - Gary: 24.03 seconds — 7th place
 - Ty: 24.06 seconds — 8th place
 - √ Martin: 23.60 seconds — 5th place
 - Allan: 24.20 seconds — 10th place
 - Hakim: 24.18 seconds — 9th place
 - √ Liam: 23.47 seconds — 4th place
 - √ Jourdan: 23.35 seconds — 2nd place
 - √ Nathan: 23.45 seconds — 3rd place
 - √ Abel: 23.09 seconds — 1st place
- First: Abel Benton
 - Second: Jourdan Amain
 - Third: Nathan Birnbaum
 - Fourth: Liam O'Donnell
 - Fifth: Martin Grandoni
 - Sixth: Diego Sanchez
 - Seventh: Gary Plumb
 - Eighth: Ty Jefferson
 - Ninth: Hakim Manolo
 - Tenth: Allan Ashburn
- See ticks in item 1 above.

EVEN'S, ODDS, AND ENDS (SB page 3)

That's Odd:

Sample answers:

- divisible by 3
- consecutive odds from 9 to 23
- squares of first six odd numbers—1, 3, 5, 7, 9, 11

We're Even:

- $42 + 44 + 46 = 132$
- $30 + 32 + 34 = 96$
- $24 + 26 + 28 = 78$
- $18 + 20 + 22 = 60$
- $12 + 14 + 16 = 42$
- $6 + 8 + 10 = 24$

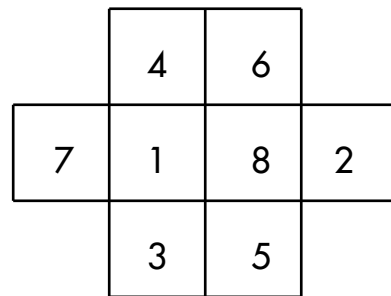
Name That Number:

- 1,129
- 81,441
- 349,756

SKILL BUILDERS 1 (SB page 4)

Number Crisscross:

See illustration:



This Way and That:

144 ways; Start by forming *DAR*. *D* touches four *A*s; each *A* touches 3 *R*s; there are 12 *DAR*s ($1 \times 4 \times 3 = 12$). If *DAR* can be read 12 ways, then *RAD* (*DAR* backwards) can be read 12 times. This means that there are 12×12 (144) ways to spell *RADAR* in the diagram.

Box of Digits:

- 85,261; 85,612; 85,621; 86,125; 86,152; 86,215; 86,251; 86,512; 86,521
- 12,856; 12,685; 12,658; 12,586; 12,568
- 12,568 or 12,586

THINK IT OVER (SB page 5)

- Matthew orders a Beef 'n' Leaf Burgah, Will and Tim each order a Cluck-Luck; or Matthew and Will each order a Beef 'n' Leaf Burgah, and Tim orders a Cluck-Luck.
- Of the two fathers, one is both a grandfather and a father; the other is both a father and a son. Of the two sons, one is both a father and a son; the other is only a son. This is a total of three people, and each caught a fish.
- Twenty buses will be passed. During the five days of travel, there will be ten Cape York to Melbourne buses that will be passed. However, there will also be ten buses already on the road on the five-day trip to Melbourne when the bus leaves; and these ten buses will also be passed.
- a man looking in a mirror
- 10¢

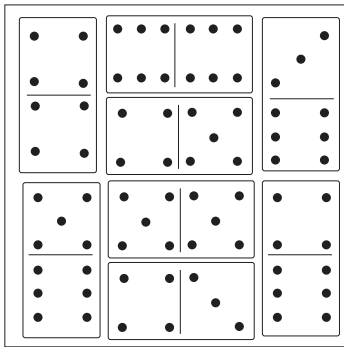
N: Numeration
NT: Number Theory
M: Measurement

G: Geometry
PA: Prealgebra
DI: Data Interpretation

LR: Logical Reasoning

DOMINOES AND DEFINITIONS (SB page 6)

Dominoes:



Definitions:

hex: prefix for six

hexagon: six-sided figure

hexapod: insect with six legs

hexameros: having six parts (often used to describe a flower)

GET A ROUND (SB page 7)

Game results will vary.

NUMBER PUZZLES (SB page 8)

Problems, Problems:

$98,901 \div 9 = 10,989$; $87,912 \div 4 = 21,978$ (Each quotient is a reversal of the dividend.)

Fun Fractions:

$\frac{1}{4}, \frac{8}{4}$ (or 2), $\frac{2}{5}, \frac{1}{5}$ (The remaining fraction is the same as the original fraction reduced.)

One Way:

1; 11; 111; 1,111; 11,111; 111,111; 1,111,111; 11,111,111; 111,111,111; 1,111,111,111 (Each answer is composed entirely of ones. The number of ones in each answer is equal to the number being added in the equation.)

THE MAGIC OF NUMBERS (SB page 9)

Magic Square:

4	14	15	1
9	7	6	12
5	11	10	8
16	2	3	13

That Much:

a. 63 b. 1 c. 2

Number Cube Nonsense:

Answers to items 1–4 will vary, but the results of 60 rolls should be closer to 50% than the results of 30 rolls.

SKILL BUILDERS 2 (SB page 10)

In the Money:

Build-up: \$7,000.00

Hi-Rize: \$16,383.00

Calculator Puns:

a. 637 = leg b. 918 = big c. 7715 = sill
'Numbinitions'

1. one in a million 2. square root

SUBTRACTION BY ADDITION (SB page 11)

For each try, the answer to Step 4 and Step 5 (the original problem) should be the same number. For the first try, that number is 733.

THE BIZARRE WORLD OF NUMBERS (SB page 12)

Product Partners:

The final number consists of the three digits in the original number, twice.

Wonderful World of Nines:

- 00,999
- 11,988
- 22,977
- 33,966
- 44,955
- 55,944
- 66,933
- 77,922
- 88,911
- 99,900

Many observations can be made. For example: The number pattern is reversed after problem 5; in each answer, the numbers in the ones and ten-thousands places equal 9; the numbers in the tens and thousands places equal 9; 9 is the middle number in all the answers; the sum of all the digits in each answer is 27.

Ponderables:

- 4
- None: unlisted phone numbers aren't listed in a phone book.

BREAK THE BANK (SB page 13)

TOTALS:

DMITRI	KATRINA
\$530.25 (July)	\$505.00 (July)
\$570.90 (August)	\$555.50 (August)
\$647.31 (September)	\$621.66 (September)
\$676.00 (October)	\$676.36 (October)
\$720.13 (November)	\$698.27 (November)
\$826.31 (December)	\$782.01 (December)

Dmitri's account is worth \$44.30 more than Katrina's account by the end of December.