THE ALEXANDER-DEWEY ARITHMETIC. ELEMENTARY BOOK

Published @ 2017 Trieste Publishing Pty Ltd

ISBN 9780649043477

The Alexander-Dewey Arithmetic. Elementary book by Georgia Alexander & John Dewey

Except for use in any review, the reproduction or utilisation of this work in whole or in part in any form by any electronic, mechanical or other means, now known or hereafter invented, including xerography, photocopying and recording, or in any information storage or retrieval system, is forbidden without the permission of the publisher, Trieste Publishing Pty Ltd, PO Box 1576 Collingwood, Victoria 3066 Australia.

All rights reserved.

Edited by Trieste Publishing Pty Ltd.
Cover @ 2017

This book is sold subject to the condition that it shall not, by way of trade or otherwise, be lent, re-sold, hired out, or otherwise circulated without the publisher's prior consent in any form or binding or cover other than that in which it is published and without a similar condition including this condition being imposed on the subsequent purchaser.

www.triestepublishing.com

GEORGIA ALEXANDER & JOHN DEWEY

THE ALEXANDER-DEWEY ARITHMETIC. ELEMENTARY BOOK

Trieste

THE

ALEXANDER-DEWEY ARITHMETIC

ELEMENTARY BOOK

BY

GEORGIA ALEXANDER

DISTRICT SUPERINTENDENT OF INDIANAPOLIS SCHOOLS

EDITED BY

JOHN DEWEY

PROFESSOR OF PHILOSOPHY IN COLUMBIA UNIVERSITY

The problem is always the same: to interest the pupil, to induce research, to give him the notion continually, the illusion, if you please, that he is discovering for himself that which is being taught him. — M. LAISANT.

LONGMANS, GREEN AND CO.

FOURTH AVENUE & 30TH STREET, NEW YORK

2457 PRAIRIE AVENUE, CHICAGO

1921

HARVARD COLLEGE LIBRARY
GIFT OF
GINN & CO.
JUL 1 1926

COPYRIGHT, 1921, BY
LONGMANS, GREEN AND CO.

PREFACE

THIS series of arithmetics arises from the realization that the mathematics taught in the schools of a democracy must function in:

1. Clear and independent thinking as a preparation for business, science and industry.
2. Skill in mathematical computation.
3. Civic responsibility which will carry into action whatever is needed for the welfare of the community.

That these ends may be accomplished, new arithmetical ideas have been introduced by means of the socialized recitation, thus affording the pupil an impelling incentive, cultivation of initiative and judgment, and a desire to check results. The arithmetical ideas gained through this social introduction are made automatic through scientific practice which later culminates in their application to new concrete situations. Reviews are both constant and varied. Fully fifty per cent of the work is to be performed without pencil. The subject matter is of contemporary interest which brings into the otherwise isolated school-room the great world where mathematics are found in every basic activity. The desideratum is an intelligent, responsible, skillful pupil.

The respective contributions of the author and the editor of the series are perhaps sufficiently indicated by the use of these terms. The editor has not confined his attention to allowing the use of his name, but has made suggestions as to the underlying principles, has suggested experiments to be tested in school-room practice, has read and criticized the text and is jointly responsible for its present form. The specific problems and principles have been worked out in the school-room under the direct supervision of the author and tested till they were satisfactory. Grateful acknowledgment is made to the score of classroom teachers who have so generously and intelligently aided in testing the various lessons, and to Mrs. John Dewey, who has read the text critically and made valuable suggestions.

CONTENTS

*While the entire book is based on induction, those exercises that develop the decimal system are marked * for special study by the child alone.*

PART I — SECTION ONE

Introductory Review

	PAGE
Five and Ten	1
Form for Addition and Subtraction	2
Linear Measure	4, 193
* Combinations under 10	5
Liquid Measure	6, 107, 108
Odd and Even	7
Square and Cubic Measure	8, 80
* Adding by 10's to 100	10, 11
More and Less	13
The Dozen	14
Numbers from 10 to 20	15
* Making 100 by 10's and 1's	16
* Notation in Decades over 10	17
* Combinations in Decades over 10	18–32
Multiplying 2 and by 2	19, 20, 25
Form for Multiplication	21
* Addition in Two Columns	22
Dividing by 2	23
Form for Short Division	23
* Subtraction in Two Columns	24
* Multiplying 10's	25
One Half	27, 29
* Making 10's	28
* Subtracting from 10's	31

ADVANCE WORK

PAGE
* Eleven and Combinations Ending in 1 33–58
* Two-column Addition — "Carrying" 36, 64
* Notation to 1,000 41
Remaining Combinations in Addition 42
* Multiplying the Decades 44
* Subtraction Involving "Borrowing" 45, 46

PART I — SECTION TWO

Twelve and Combinations Ending in 2 ..... 59, 88
Roman Numerals 60, 74, 149, 192
Division of Hundreds 62
Multiplying 3 and by 3 ..... 72, 77
Dividing by 3 73
Thirds 78, 84
* Multiplying Involving "Carrying" 82, 199
* Thirteen and Combinations Ending in 3 89–114
* Notation to 10,000 91
* Proving in Subtraction 95
Multiplying 4 and by 4 ..... 99, 102
Dividing by 4 104
Uneven Division by 2 105
Dry Measure 107, 108

PART II — SECTION ONE

Fourteen and Combinations Ending in 4 ..... 113, 140
* Multiplying by 10's 116, 122
* Division Involving "Carrying" 117
* Multiplying by Two Figures 123
Fourths 123, 125
Uneven Division by 3 127
Introducing Ratio 128, 134, 158
* Notation to 1,000,000 133
Multiplying 5 and by 5 ..... 134, 140
Subtracting from Hundreds 137
* Proving in Multiplication 139, 207
Fifteen and Combinations Ending in 5 141–165
Fifths 150, 151

PAGE
Uneven Division by 4 154
Terms and Proof in Addition 155
Terms in Subtraction 157
Multiplying 6 and by 6 ..... 158, 160
Terms in Multiplication 162

PART II — SECTION TWO

Sixteen and Combinations Ending in 6 166–188
Dividing by 6 168
Uneven Division by 5, 6, 7, 8, 9 ..... 169, 184, 206
* Form for Long Division 170
* Dividing by 10's 173, 177
Terms in Division 175
* Proving in Division 175, 179, 182, 214
Avoirdupois Weight 180
Sixths 181
Multiplying 7 and by 7 ..... 182, 185, 186
Numbers Ending in 7 and 8 ..... 189, 218
Measuring Time 190
Dividing by 7 192
Sevenths 195
Multiplying 8 and by 8 ..... 200, 204
Bills 202
The Decimal Point 210
* Grouping by 10's in Addition 210
Eighths 210
* Multiplying by a Mixed Number 212
Multiplying 9 and by 9 215
Ninths 216
Test Pages 221, 222
Tables 223, 224