NEW GRAMMAR SCHOOL ARITHMETIC. PART I

Published @ 2017 Trieste Publishing Pty Ltd

ISBN 9780649656844

New Grammar School Arithmetic. Part I by John H. Walsh

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

JOHN H. WALSH

NEW GRAMMAR SCHOOL ARITHMETIC. PART I

Trieste

NEW

GRAMMAR SCHOOL ARITHMETIC

PART I

BY

JOHN H. WALSH

ASSOCIATE SUPERINTENDENT OF SCHOOLS, THE CITY OF NEW YORK

BOSTON, U.S.A.
D. C. HEATH & CO., PUBLISHERS
1906

EducT1906.840

HARVARD COLLEGE LIBRARY
GIFT OF THE
NEWTON FREE LIBRARY
AUG 9 1934

COPYRIGHT, 1895 AND 1903,
BY JOHN H. WALSH.

INTRODUCTION.

THE New Grammar School Arithmetic forms with the New Primary Arithmetic a complete course in elementary school mathematics.

Each of the first four chapters of the New Grammar School Arithmetic provides for a half year, beginning with advanced matter, which is followed by a review and an extension of the topics of the preceding grades. Each of the next two chapters (V and VI) contains arithmetic work for a year, which should be supplemented by portions of the algebraic and geometrical material of Chapters VII and VIII. It is recommended that at least a portion of the work in equations of Chapter VII should precede the study of Chapter V.

Among the special features of the New Grammar School Arithmetic are the number and the variety of the problems; the systematic reviews, which cover oral and written drill work even in the fundamental operations; the attention paid to short, direct, business methods of computation; and the spiral handling of the various topics.

CONTENTS.

CHAPTER I.

PAGES

MIXED NUMBERS . . . . . 1 to 16
Addition, Subtraction, Multiplication, Division (Common Denominators determined by inspection).

REVIEW OF SIMPLE NUMBERS . . . . . 17 to 24
Notation and Numeration, Special Drills, Fundamental Processes.

DECIMALS (three places) . . . . . 25 to 32
Addition and Subtraction, Multiplication and Division by an Integer.

UNITED STATES MONEY . . . . . 32 to 43
Fractional Parts of a Dollar, Division of United States Money.

DENOMINATE NUMBERS . . . . . 43 to 45
Time, Dry and Liquid Measures, Avoirdupois Weight, Miscellaneous Examples.

MEASUREMENTS . . . . . 46 to 49
The Area of Rectangles.

BILLS 50

MISCELLANEOUS . . . . . 51 to 58
Approximate Answers, Review Problems.

CHAPTER II.

FRACTIONS . . . . . 59 to 84
Greatest Common Divisor, Least Common Multiple, Addition and Subtraction of Fractions, Cancellation, Ratio, Multiplication and Division of Fractions.

DECIMALS . . . . . 84 to 91
Multiplication of Decimals, Division of Decimals.

PAGES

UNITED STATES MONEY . . . . . 92 to 93
Fractional Parts of a Dollar

DENOMINATE NUMBERS . . . . . 94 to 99
Reduction, Addition, Subtraction, Multiplication, and Division.

MEASUREMENTS . . . . . 99 to 101
Areas and Surfaces.

BILLS . . . . . 101 to 102

REVIEW OF SIMPLE NUMBERS . . . . . 102 to 118
Short Methods, Sight Exercises, Sight Approximations, Review Problems.

CHAPTER III.

DECIMALS . . . . . 119 to 132
Notation and Numeration, Reduction, Addition, Subtraction, Multiplication, Division.

UNITED STATES MONEY . . . . . 132 to 133

DENOMINATE NUMBERS . . . . . 133 to 139
Reduction, Addition, Subtraction, Multiplication, Division (two denominations).

MEASUREMENTS . . . . . 139 to 144
Areas of Rectangles, Areas of Right-angled Triangles.

BILLS . . . . . 144 to 145

PERCENTAGE . . . . . 145 to 147

INTEREST . . . . . 148 to 152

REVIEW OF SIMPLE NUMBERS AND FRACTIONS . . 152 to 162
Sight Approximations, Special Drills, Cancellation, Ratio, Short Methods, Review Fractions.

MISCELLANEOUS PROBLEMS . . . . . 162 to 173
Oral and Written.

CHAPTER IV.

DENOMINATE NUMBERS . . . . . 173 to 189
Reduction, Descending and Ascending, Compound Addition, Subtraction, Multiplication, and Division, Avoirdupois Weight, Time between Dates.

PAGES

PERCENTAGE . . . . . 189 to 194
Applications and Simple Interest.

MEASUREMENTS . . . . . 195 to 209
Area of Rectangles, Square Measure, Solid Contents, Cubic Measure, Surfaces of Rectangular Solids, Angles, Triangles, Quadrilaterals.

REVIEW OF SIMPLE NUMBERS AND FRACTIONS . . 209 to 218
Special Drills, Sight Approximations, Fundamental Processes, Cancellation, Review Fractions, Review Decimals.

REVIEW PROBLEMS . . . . . 218 to 228
Miscellaneous, Oral, Written.

SUGGESTIONS TO TEACHERS.

Additions and Omissions. — The teacher should freely supplement the work of the text-book when it is found necessary to do so; and the pupils should not be required to continue the work under any topic after they fully understand it, even though they may not have solved all the problems given in connection therewith.

Oral and Written Work. — The heading "Written Problems" is merely a general direction, and it should be disregarded by the teacher when the pupils are able to do the work "mentally." The use of the pencil should be required only so far as it may be necessary. It is a pedagogical mistake to insist that the brighter pupils of a class should set down a number of figures that they do not need. As an occasional exercise, the pupils may be directed to give all the work required to solve a problem, and to make a written explanation of each step in the solution; but it should be the teacher's aim to have the majority of the examples done with as great rapidity as is consistent with absolute correctness. It will be found that, as a rule, the quickest workers are the most accurate.

Conduct of the Recitation. — It is often advisable, for some purposes, to divide an arithmetic class into two sections, even where the pupils are nearly equal in attainments. The members of one section may work examples from their books while the others write the answers to oral problems given by the teacher, etc.

Where a class is thus taught in two divisions, the members of each should sit in alternate rows, extending from the front of the room to the rear. Seated in this way each pupil is doing a different kind of work from those on the right and the left, and he does not have the temptation of a neighbor's work to lead him to compare answers.

To save time, explanations of new subjects may be given to the whole class; but much of the arithmetic work should be done in "sections," one of which is under the immediate direction of the teacher, while the other is employed in "seat" work. The "seat" work of pupils of the more advanced classes should consist largely of problems solved without assistance. Especial pains have been taken to grade the