

**LIPPINCOTT'S PRACTICAL PRIMARY
ARITHMETIC. BEING THE DEVELOPMENT
OF THE EARLY IDEAS
OF NUMBER AND ITS PRACTICAL
APPLICATION IN THE THIRD AND FOURTH
GRADES. SECOND BOOK**

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Lippincott's Practical Primary Arithmetic. Being the Development of the Early Ideas of Number and Its Practical Application in the Third and Fourth Grades. Second Book by T. C. Bruff & C. H. Hayden & L. E. Watkins

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T. C. BRUFF & C. H. HAYDEN & L. E. WATKINS

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CATION IN THE THIRD AND FOURTH GRADES

SECOND BOOK

BY

T. C. BRUFF, C. H. HAYDEN, L. E. WATKINS

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PREFACE*

By retaining the best of the old and by combining it with the progressive, the authors of this ARITHMETIC aim to unify and correlate the work in the primary grades, so that there will be no side-stepping or marking time during this period.

The arrangement of the content is by grades from the first to the fourth year inclusive. Each grade is divided into half-year sections of five months. Advancement may be made from section to section, or promotion from grade to grade at stated intervals, or whenever the class has completed the prescribed work.

The first-grade *unit* is presented as an outline or manual for teachers. It consists of approved methods, type lessons, concrete illustrations, and suggestions for the early development of number concepts from 1 to 20. While the experienced and trained teacher may have her own, and possibly more satisfactory methods, yet for the sake of uniformity the general plan of development in this book should be followed by all. For the untrained and unskilled teacher the value of such

* Written for First and Second Books.

lessons is incalculable. The greater part of the work in the first and second grades should be oral; children should be encouraged in the free use of materials for seat-work, as impressions may be made through the hand as well as through the eye or the ear.

The objective method in introducing new topics is continued throughout the grades. The concrete, however, is dropped as soon as the need for it ceases. The "45 combinations" and other tables are fixed by constant drill, until they become automatic. The idea of ratio begins naturally with the recognition of the relations of familiar objects to similar objects; and these relations, being comprehended by means of the senses, it is a short step to the fractional forms. The familiar terms of the tables of common measurement that come within the daily experience of the child are used from the beginning, but the Tables as a whole are not to be memorized until the fourth year.

Simple problems, adapted to the child's environment, are introduced early. They apply the abstract numbers already learned, and the answers are found by one operation. The oral precedes the written and is intended to stimulate interest, and also through frequent drills to produce quick thinking. Symbols are intro-

duced and explained as they are needed, but no definitions are required in the first three grades.

The authors have attempted throughout the book to give due consideration to the two aspects of arithmetic; to give to each its proper proportion of emphasis, and in so doing to relate one well to the other. The aim has been first *the Why* and then *the How* of the processes; to have the pupil connect what he learns with the vital things of life, and then to acquire skill in what he does by all the means at his command. We hope that the book will prove helpful to many who strive for the *utility* and the *culture* of Arithmetic.

THE AUTHORS.

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