

ARITHMETIC

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Arithmetic by Mary G. Brants & Eugene Herz

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ARITHMETIC

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TEACHER'S MANUAL

FOR

PARTS VII AND VIII

ADVANCED LESSONS

THE JOHN C. WINSTON COMPANY
CHICAGO PHILADELPHIA TORONTO

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FOREWORD

Bearing in mind that a thorough knowledge of arithmetic is perhaps more frequently the cause of success in life than is any other single factor, one can hardly overestimate the importance of this subject to the future welfare of the child, nor can one fail to realize how great is the responsibility which rests on those whose duty it is to provide for his education in this branch.

No book or series of books can possibly illustrate every use to which numbers can be put, but if the principles underlying their use are properly taught, the child can reason for himself the proper application of his knowledge to any given problem. Furthermore, as he must know not merely how to solve a problem, but how to solve it in the quickest and simplest manner, he must know not merely the various processes, but their construction as well; he must be able to analyze to such an extent that when a problem is presented to him, he can distinguish the facts which are relevant from those which are irrelevant, he can separate the known from the unknown, he can arrange the known in logical order for his processes, and he can use the shortest processes possible. An attempt to give the pupil this ability is the motive for this work.

The vehicle used to obtain the result is a series of progressive lessons, which, with ample practice, take the pupil step by step through the construction of each process to be learned, thus giving him the opportunity of following the teacher's explanation, and of referring to past lessons at any time. In this way the pupil who is slower to grasp new ideas than the average can keep up with his class, and every pupil can at all times refresh his memory on any points which he may have forgotten or which may have escaped him in the classroom, and which have so often been lost to him forever.

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The time-saving methods used by the most expert arithmeticians are introduced as part of the routine work; thus, these become a part of the child's general education without any special effort on his part.

It is not intended that the lessons or definitions are to be learned verbatim, any more than it is intended that the examples given are to be memorized; both are there for the purpose of showing the pupil the reason for, and the application of, the processes, and the exercises are there to give him practice and to test his knowledge of what he has learned.

The exercises are prepared in such manner that they form an automatic and continuous review of what has been learned, but further review work is given at regular intervals.

The series consists of Three Books and Teacher's Manuals, as follows:

- Primary Lessons Parts I and II. (Teacher's Manual only.)
- Elementary Lessons Parts III and IV. (With Manual for the Teacher.)
- Intermediate Lessons Parts V and VI. (With Manual for the Teacher.)
- Advanced Lessons Parts VII and VIII. (With Manual for the Teacher.)

The first two parts are so arranged in the Teacher's Manual that the lessons and exercises can be given largely as games, play work, number stories, in language work, etc., all used more or less incidentally, till the child is gradually prepared for work requiring an increasing degree of conscious effort.

The work contained in each of the eight parts is that which is usually taught in the corresponding grade, and it is recommended that this routine be followed. However, special provision has been made for such variations in the grading as are required in some localities, by means of a series of notes in the Teacher's Manuals which enable the teacher to follow either method with equal facility.

GENERAL NOTES FOR THE TEACHER

1. Read the foreword carefully.
2. Follow the detailed notes for each lesson.
3. Each lesson is to be thoroughly demonstrated, explained and discussed in the classroom before being used by the pupil for study and reference. The time required for each lesson depends on the ability of the class. Be thorough.
4. In demonstrating, use the objects of the pupil's environment for concrete material, and let him have first-hand experience.
5. Illustrate every essential point on the blackboard.
6. Do everything possible to make the recitations interesting and enjoyable.
7. Introduce the competitive spirit wherever possible.
8. Remember that proficiency in arithmetic can be analyzed as resulting principally from these three factors:
 - (a) A thorough knowledge of the various processes and methods.
 - (b) The ability to select the process or method most applicable to the given problem.
 - (c) The elimination of all unnecessary work.
9. Make the pupil realize that a thorough knowledge of arithmetic will be of great value to him throughout his life.
10. Before beginning the year's work, make a careful survey of the topics to be covered, giving due consideration to the Notes Regarding Grading in the Teacher's Manuals; then plan your schedule so that you will not have to slight over some of the later work on account of lack of time.

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