

**WALSH-SUZZALLO
ARITHMETICS. BOOK ONE.
FUNDAMENTAL
PROCESSES**

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JOHN HENRY WALSH & HENRY SUZZALLO

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FUNDAMENTAL PROCESSES

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PREFACE

THESE books are designed to give an elementary school child all the arithmetical power necessary to cope with the situations of common everyday life. A social survey of the usual responsibilities of men has determined omissions and additions. The methods of learning and teaching employed have been indicated by an analysis of thousands of typical arithmetical errors collected in ordinary schools.

Because a standard of social efficiency has been applied throughout, it is expected that the immediate competency of the pupil leaving school will be greatly increased. Because a standard of pedagogical economy has likewise been rigidly observed, it is also expected that the pupils will develop this competency one to two years earlier.

In consequence, this series has been so arranged that a child may acquire an easy and accurate command over all fundamental processes, both simple and complex, by the end of the sixth year. The seventh and eighth school years are thus left free for a study of those business institutions and practices, the understanding of which is vital to an extended use of arithmetic in practical life.

This particular book, the first one in the series, covers

the fundamental elements of arithmetical manipulation and thought. Thus a child who goes no farther than the fourth or fifth grade will be so familiar with essentials that he can readily learn more arithmetic by himself.

No attempt has been made to project the pupil into unfamiliar situations. His experience is already greater than his power of mathematical interpretation. The teacher of primary arithmetic has accomplished enough when she has taught the child to solve his own problems. Hence, a special effort has been made to keep both examples and problems within the reach of the child.

While abstract work is the chief difficulty of the first school grades, it must ever be remembered that it is always a concrete and personally vital problem which provokes the need to compute. In all development of new technique, the teacher should start with an easy problem actually or orally expressed. Once the child has decided from the concrete situation what he is to do, he should be permitted to do it symbolically or abstractly. Mere drill on combinations, processes, and manipulations may well be abstract, provided the pupil feels the need of such perfection and knows that in the end his facility is to be used in the solution of real problems.

In this text, every new process is introduced by a problem that calls for its use. Similarly, the last drill upon a process is given in the form of oral and written problems. This is to remind the teacher that all abstract work, however important, is merely an intermediate stage in the

effective teaching of arithmetic. Ample provision must be made for concrete work at the beginning and end of all practice upon the mechanics of arithmetic.

The use of more than one way of working an example has been carefully avoided. We should be content with one concrete method of computation, particularly in the primary grades. To attempt to develop two different habits of response to the same situation leads to confusion and waste. Short methods of operation are given only in the higher grades.

Special attention is called to the device used to give the child a clear understanding of the manner in which formal processes are performed. Whenever a process is expressed in figures, each stage of the mental process accompanying it is also expressed in simple language. These parallel language statements take the form of simple directions given in the most economical and efficient order. If the child does not clearly see how the process has been conducted in the course of the teacher's demonstration, reference to the text makes it clear. In establishing a habit it is advantageous to follow an accurate, permanent, and consistent form. It is quite impossible for the teacher to give a great amount of attention to each individual in our large classes, and it is wise to develop in the child the power to understand and practice arithmetical manipulations by himself. In line with this effort to give the child power to care for himself, the child is constantly taught to test or check his work.

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