NUMBER LESSONS: A BOOK FOR SECOND AND THIRD YEAR PUPILS

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BY

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PREFACE.

THIS book has been prepared with a view of avoiding the evils that result from using the blackboard alone for number work. It is intended to be put into the hands of pupils at the beginning of the second year (or when they have mastered all combinations to 10), and used for two years.

It has been the special aim to use only such words as children can read easily, and in Chapter I. the few difficult words that appear in the lessons are placed at the top of each page for development. It will be noticed that many of these words are used together with their plurals. There is no better time for teaching the language of plurality than when children are studying numbers; and so many of our common English words have irregular plurals, that it seems necessary to master them before a child can use a number book intelligently.

In the first and second chapters the word (Picture) is used after such problems as can be illustrated. The children should sketch the picture before trying to solve the problem. This should not be neglected. In the third and fourth chapters the word (Illustrate) is substituted for (Picture).

After an occasional abstract combination, the word (Problem) appears throughout the book. In these cases it is intended that the pupils shall be required to construct original problems, in which the language used shall involve the

operations indicated. This work can be increased at the pleasure of the teacher.

It is not claimed that the book contains enough abstract work. Only enough of such work is used to indicate the nature and variety of the abstract drill that the children should have. The teacher should give very much more, in addition to what is in the book, especially in Chapters III. and IV.

The pages of Sight Work, Drill Work, and Test Work explain themselves. It has been the aim to classify the simple problems together under the head of Sight Work, so that they might be solved mentally. Do not use a pencil on any problems that can be solved without it. Additional problems of this kind should be given by the teacher.

Let the Drill Work be kept up faithfully. No time is gained by neglecting this, with a view of getting over the course. Let the combinations already learned be drilled upon so thoroughly that pupils can give ready and correct answers as rapidly as questions may be asked.

These pages contain the number lessons as daily used in the schools of Syracuse, N.Y. Grateful acknowledgment is due, and is hereby tendered, the teachers of the second and third grades for kindly contributing their lesson work, without which this book could not have been produced.

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SUGGESTIONS TO TEACHERS.

CHAPTER I. develops numbers from 10 to 20.

The fractions $\frac{1}{2}$, $\frac{1}{3}$, $\frac{1}{4}$, $\frac{1}{5}$ (with 1 for numerator) are used with only such numbers as give integral results. All whole numbers are to be written to 50, including Roman numerals. Before putting the book into the pupils' hands, the teacher should teach them how to put down work by using a great number of simple problems involving all the varieties of work contained in the chapter. Pupils should be able to read all problems readily before attempting to solve them.

Chapter II. deals with numbers from 20 to 40, and uses $\frac{1}{2}$, $\frac{1}{3}$, $\frac{1}{4}$, $\frac{1}{5}$, as in Chapter I. Whole numbers, including Roman numerals, are written to 100. Toward the end of the chapter the work of "carrying" (so called) should be commenced in addition and subtraction.

Chapter III. continues the work in the fundamental rules with one figure in the multiplier or divisor, and the finding of even fractional parts, using 1 for the numerator, to $\frac{1}{10}$. Numbers from 40 to 100 are applied in the problems, and numbers to 500 are written in both Arabic and Roman.

The pupils should be thoroughly proficient in the process of "carrying" in addition, subtraction, multiplication, and division before they begin the chapter. They should also know the use of the dollar sign and the decimal point.

Chapter IV. continues the fundamental rules and fractions by the use of 1, 2, and 3 for numerators, and any number not exceeding 12 for a denominator, taking such fractional parts as will give results in whole numbers only. Short division with 12 or less for a divisor. Numbers to 1000 are applied by using the Money table, Liquid Measure to gallons, Dry Measure to bushels, Avoirdupois Weight to and including pounds, and Long Measure to yards.

CHAPTER I.

Lesson 1.

four	slate	nest	nine
five	chair	eight	many

1. How many boys are 5 boys and 3 boys?
2. Three eggs and 4 eggs are how many eggs?
3. How many are six tops and 3 tops?
4. How many are 3 hens and 7 hens?
5. Two cats and four cats are how many cats?
6. Five books and two books are how many books?
7. Four hats and six hats are how many hats?
8. One slate and nine slates are how many?
9. 3 chairs and 5 chairs are how many chairs?
10. Six balls and three balls are how many balls?
11. Five and two are how many?
12. Seven and three are how many?
13. How many are four and four?
14. May had three cents, and I gave her 8 cents; how many cents did she have then?
15. John found 4 eggs in one nest and six in another; how many eggs did he find?
16. James had 7 cents and found 4 more; how many cents did he then have?