

**MENTAL ARITHMETIC UPON  
THE INDUCTIVE PLAN.  
DESIGNED FOR PRIMARY  
AND INTERMEDIATE SCHOOLS**

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Mental Arithmetic upon the Inductive Plan. Designed for Primary and Intermediate Schools by Benjamin Greenleaf

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**BENJAMIN GREENLEAF**

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GREENLEAF'S MENTAL ARITHMETIC,  
NEW EDITION, REVISED AND ENLARGED.

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MENTAL ARITHMETIC,

UPON THE

INDUCTIVE PLAN.

DESIGNED FOR

PRIMARY AND INTERMEDIATE SCHOOLS.

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AUTHOR OF THE "NATIONAL ARITHMETIC," ETC.

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GEORGE L.

## PREFACE.

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THE design of the author, in revising and enlarging this work, has been, to present to the mind of the learner a more complete collection of intellectual exercises than was contained in former editions. The object of the work is to teach the pupil how to *think*, and to enable him, by an almost imperceptible gradation of thought, to advance from the simplest forms of reasoning to the more vigorous exercise of the mind.

Hence, no arbitrary rules have been introduced, and only such hints and suggestions, with occasional formulæ of reasoning, as were considered necessary for the profitable study of the lessons.

A scholar should not be satisfied with *results* merely;— he should know the *conditions*, upon which those results depend, and be able, from those conditions, to give a *reason* for the results.

Copious practical exercises have been introduced, in connection with the abstract questions, particularly in connection with Fractions, that the pupil may see the application of numbers to the common business of life.

A larger amount of matter, it is believed, will be found in connection with the tables of money, weights, and measures, than is contained in any other similar work. There are also frequent lessons for general exercise, to refresh the mind in the preceding principles, and test the proficiency that the pupil is making as he advances.

Several pages of Written Arithmetic have been introduced, at the close of the work, which can be used while the pupil is advancing in the Mental department, or omitted until that is finished.

In most schools, however, pupils commence Written Arithmetic before they finish the more difficult parts of the Mental department. But in no case should the pupil be allowed the use of the slate in the performance of *intellectual* exercises.

It is the opinion of the author, that a thorough understanding of this work will fully prepare the mind for the profitable study of the second book of the series.

B. GREENLEAF.

Bradford Seminary, November, 1851.

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#### SUGGESTIONS TO TEACHERS.

It is respectfully suggested, that, in using this work, the pupil should be taught, from the commencement, to give a *clear Analysis* of every question he performs.

Many teachers permit their pupils to use their books in the class, by reading each question before solving it.

Other teachers prefer to read the questions themselves to the *whole class*, and then call upon some one for a solution. By the former method of recitation, the class *appears* better, and makes a finer *show* to the spectator. By the latter mode, the attention of each member of the class is gained, in every question, and more earnestness of thought elicited.

The practice of permitting a class to answer *in concert*, whereby the palm of scholarship is carried off by the most boisterous, cannot be too highly censured.

With very small children, however, the multiplication table may be repeated in concert, care being taken to avoid an unpleasant "*ring-song*" tone, in the exercise.

A sufficient number of notes for the teacher, and explanations for the scholar, are introduced, to lead to a profitable use of the work.

B. G.





5. Which is the smallest number of cups in any one of the rows?

6. Which is the largest number of cups in any one of the rows?

7. Commence at the bottom of the rows, and count the cups upward.

8. What is the largest number that you have counted?

9. If you had one ball in your right hand, and one in your left hand, how many would you have in both hands?



10. William had one peach, and his father gave him one more; how many peaches then had William?



11. One and one are how many?

12. George had two nuts, and his sister gave him one more; how many nuts did he then have?



13. Two and one are how many?

14. Sarah has three books, and Mary has one book; how many books have they both?



15. Three and one are how many?

16. If you had four cents, and your mother should give you another, how many cents would you then have?



17. Four and one are how many?

18. Lucy found five pins, and Mary found one pin; how many did both find?



19. Five and one are how many?

20. Thomas recited six perfect lessons, and his brother only one; how many did both recite?



21. Six and one are how many?

22. If you had seven chestnuts, and I should give you one more, how many chestnuts would you then have?



23. Seven and one are how many?

24. Rufus paid eight cents for a fishing-line, and one cent for a fish-hook; how many cents did he pay for both?



25. Eight and one are how many?

26. Paid nine dollars for a table, and one dollar for a chair; how many dollars did I pay for both?



27. Nine and one are how many?



### LESSON II.

1. If you had two cherries, and I should give you two more, how many cherries would you then have?



2. Two and two are how many?

3. James has three nuts, and Charles has two nuts; how many nuts have they both?



4. Three and two are how many?