5. In Reading and Recitation each competitor shall be at liberty to choose his own piece, and may either read or recite.

6. Competitors for the prizes in Spelling will be tested on

(a) The spelling and definition of any word in Book IV. of the N. S. Series of Readers.
(b) The spelling of names of Household Utensils.
(c) " " Farming do. Vehicles, &c.
(d) " " Articles of Apparel.
(e) " " Parts of Ships, Tackling of Ships.
(f) " " *Indigenous Plants, Fruits, &c.
(g) " " *Domestic and Wild Animals.
(h) " " *Fishes.

7. In Mental Arithmetic the competitors may be tested in the fundamental rules, and upon any rule given on pages 168—176 of the N. S. Advanced Arithmetic. The one arriving at correct results with greatest rapidity to receive the prize.

8. No pupil shall be eligible to receive more than two prizes; but may nevertheless enter all the competitions, and, if debarred from receiving any prize by this proviso, shall receive a certificate to that effect from the Inspector.

9. Each Section having one or more successful pupils, will receive a copy of Chisholm's *Mathematical Scale*.

NUMBER.

A COURSE OF LESSONS PREPARATORY TO THE USE OF A TEXT-BOOK ON ARITHMETIC.

V.

THIRD STEP.

Exercises with Numbers, the Sum or Product of which does not exceed 100.

INTRODUCTION.

SINCE the decimal system in its principal features, together with its notation, has to some extent been presented to the children in the preceding chapters, it becomes the duty of the teacher to show the children its advantages, even in mental arithmetic, and not to leave it entirely to chance, or to an appeal to memory alone; remembering that in every school a large proportion of the children do not belong to that privileged class who seize everything by the force of native talent, or of genius. The teacher may make use of the hints given in these introductory remarks whenever the opportunity, or rather the necessity, presents itself. For instance, if there should be some difficulty in the addition of 26 + 3, 56 + 3, &c., the teacher has but to ask what 6 + 3 would make, showing that the above questions are related, or rather based upon this fact, and that, whilst the sum of the units is 9 in every one of these examples, the number of tens remains unchanged.

The same advantage is taken, when the subtraction of such examples as 37 — 4, 57 — 4, 97 — 4, &c., is to be performed, since they are all based upon the fact that 7 — 4 leaves 3, and that the number of tens is not affected.

In such examples as 57 — 5, 67 — 5, 87 — 5, the number of tens becomes affected—that is, increased by one ten; but as the sum of the units 7 + 5 makes 12, it is easy to perceive that the number of units in the answer to any of the above questions must be 2, whilst the number of tens becomes increased by one.

A little more thought is required in solving such questions as 72 — 5, &c., where the number of units to be extracted exceeds the number of units in the number from which they are to be taken. In such a case, the teacher would do well to ask into what parts they could divide 5? Answer 1 + 4, 2 + 3. Ask them further, whether to take 1 + 4, or 2 + 3 away, would be the same as taking away 5? Then let them take off 2, leaving 70, and then 3 from 70, leaving 67 for the answer. Ask, then, whether it would not have been as convenient to have taken first one away, and then 4 afterward. Why not? What arrangement would they make in taking away 7 from 54? What would be the most convenient division of 7 in this example?

Another advantage presented by the decimal system, and often used for the rapid solution of questions, is found in the addition and subtraction of numbers near ten; as, for instance, of 8 and 9. To see this fully, the teacher may ask them to add 10 to any number she gives, which is the operation of a moment. She may then ask how much less 9 is than 10? If they would add 10 to any number, instead of 9, whether the result would not be too great? By how much? What must be done to conform to the question?

Similar questions may be asked in regard to the subtraction of 9 or 8, and it will be found that the common sense of the children will never be slow to seize this legitimate advantage, which the more talented children will have found out for themselves. An intelligent teacher, who acts in this spirit, need not be afraid of having any slow or stupid children in the class.

Addition and Subtraction of a Number not exceeding 10 *successively.*

We consider it of the utmost importance, that pupils should not merely receive a few isolated questions of an exercise, but should be led to answer questions arranged in a series where no link has been omitted. There is, however, a danger, that many teachers may commit mistakes in the presentation of such a series, which will render it useless. For instance, let us suppose that a class is required to answer the following questions;—What does 1 + 2 make? 2 + 2? 3 + 2? 4 + 2? 5 + 2? 6 + 2? The respective answers to these questions are, 3, 4, 5, 6, 7, 8, &c. Now it is evident that every child, in giving his answers, has but to add *one* to the answer given by his predecessor, which can be done without thought, mechanically; since, as far as the work is concerned, it requires but the addition of *one*. To avoid this mistake, the questions given below have been arranged upon a different plan.

First Series of Addition.—Add 2 to 1, and to the successive results. The teacher asks: 1 + 2, how many? 3 + 2? 5 + 2? 7 + 2? 9 + 2? 11 + 2? 13 + 2? 15 + 2? 17 + 2?

To what extent these exercises are to be carried, depends on the discretion of the teacher, and on the number of the scholars, since every one of them should take a part in the formation of a series. As a general thing, it is sufficient to add the number about nine times.

First Series of Subtraction.—Subtract 2 from 19, and from successive remainders. 19 — 2? 17 — 2? 15 — 2? 13 — 2? 11 — 2? 9 — 2? 7 — 2? 5 — 2? 3 — 2?

REMARK.—After constructing a series, the teacher must not forget to ask questions promiscuously.

Second Series of Addition.—Add 2 to 2, and to successive results. 2 + 2? 4 + 2? 6 + 2? 8 + 2? 10 + 2? 12 + 2? 14 + 2? 16 + 2? 18 + 2?

Second Series of Subtraction.—Subtract 2 from 20, and from successive remainders. 20 — 2? 18 — 2? 16 — 2? 14 — 2? 12 — 2? 10 — 2? 8 — 2? 6 — 2? 4 — 2? 2 — 2?

In order to allow the teacher to superintend and conduct several classes at the same time, she may call upon those who have gone through one or more of the preceding exercises, to commit them to writing on their slates, giving them the signs of + for addition, — for subtraction, = equality.

The work, as seen on their slates, would then stand thus:—

1 + 2 = 3	19 — 2 = 17	2 + 2 = 4	20 — 2 = 18
3 + 2 = 5	17 — 2 = 15	4 + 2 = 6	18 — 2 = 16
5 + 2 = 7	15 — 2 = 13	6 + 2 = 8	16 — 2 = 14
7 + 2 = 9	13 — 2 = 11	8 + 2 = 10	14 — 2 = 12
9 + 2 = 11	11 — 2 = 9	10 + 2 = 12	12 — 2 = 10
&c.	&c.	&c.	&c.

It is of little consequence whether the series of addition are presented in close succession, or alternate with subtraction. We follow the former method in presenting the series, which can be made in the addition and subtraction of 3.

First Series.—Addition of 3 to 1, and its successive results. 1 + 3? 4 + 3? 7 + 3? 10 + 3? 12 + 3? &c., to 25 + 3?

Second Series.—Addition of 3 to 2, &c. 2 + 3? 5 + 3? 8 + 3? 11 + 3? 14 + 3? 17 + 3? &c., to 26 + 3?

Third Series.—Addition of 3 to 3, &c. 3 + 3? 6 + 3? 9 + 3? 12 + 3? 15 + 3? 18 + 3? &c., to 27 + 3?

SUBTRACTION.

First Series.—Subtraction of 3 from 28, and from successive remainders. 28 — 3? 25 — 3? 22 — 3? 19 — 3? &c.

Second Series.—Subtraction of 3 from 29, &c. 29 — 3? 26 — 3? 23 — 3 20 — 3? &c.

Third Series.—Subtraction of 3 from 30, &c. 30 — 3? 27 — 3? 24 — 3? 21 — 3? 18 — 3? &c.

MISCELLANEOUS QUESTIONS.

28 + 3? 17 + 3? 22 + 3?
31 — 3? 16 — 3? 25 — 3?
16 + 2 + 3 + 2 + 1 + 3?
31 — 3 — 2 — 1 — 2?
15 + 2 — 3 + 1 — 2 + 3?

The above merely indicate the kind of questions that should be put to the children after having gone through with the several series. Many similar examples should be given by the teacher.

The addition and subtraction of 4 presents four series for each:

First Series.—	1 + 4?	5 + 4?	9 + 4?	&c., to	33 + 4?
Second "	2 + 4?	6 + 4?	10 + 4?	"	34 + 4?
Third "	3 + 4?	7 + 4?	11 + 4?	"	35 + 4?
Fourth "	4 + 4?	8 + 4?	12 + 4?	"	36 + 4?

SUBTRACTION.

First Series.—	37 — 4?	33 — 4?	29 — 4?	&c.
Second "	38 — 4?	34 — 4?	30 — 4?	"
Third "	39 — 4?	35 — 4?	31 — 4?	"
Fourth "	40 — 4?	36 — 4?	32 — 4?	"

Similar tables should be made out with 5, 6, 7, 8, and 9. If the teacher does not deem it necessary to include all the *series* in each

* The popular names.