THE NEW OUTLOOK ARITHMETIC

FOR JUNIOR SCHOOLS

TEACHERS' BOOK ONE

BY

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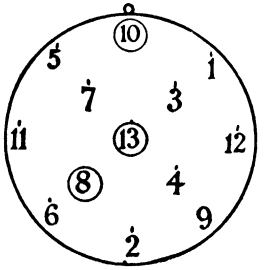
Gainsborough



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PREFACE

The four books of the New Outlook Arithmetic for Juniors have been designed to fulfil the latest requirements of the Board of Education, as set out in their recent publications dealing with the subject. They provide a sound and progressive scheme of work for pupils of all attainments in the Junior School.

In this series the utmost care has been given to the selection of the material, the grading of the work, and the method of presentation. Never, at any stage, is the work allowed to become unpractical or unreal. The exercises in themselves are interesting, and will appeal to the child. Every process is dealt with in just the right amount of detail, and the examples are not too difficult at any stage.

In weights and measures there is a complete departure from traditional features. Table items, and examples involving their use, are limited to those most commonly met with in the arithmetic of practice. Useless traditional examples, involving a wide range of units, have been intentionally omitted, and the child is not called upon to master examples in long division and long multiplication (weights and measures).

Decimals call for little attention, and more attention is given to work in vulgar fractions and their applications — both being in accordance with the new doctrine.

The large number of carefully graded mechanical exercises, planned to give the necessary practice and systematic revision in the " essentials " throughout the course, makes this series a veritable " training ground " for future speed and accuracy.

The books breathe the spirit of real arithmetic, but are well devoid of mathematical formality. The teachers' pages provide what is practically a treatise on the teaching and presentation of arithmetic.

My sincere thanks are due to Mr. A. Musgrove, who is responsible for the originals of many of the drawings and pictures to be found in the books.

E. K.

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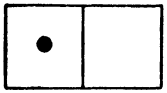
FIRST HALF YEAR

SECOND HALF YEAR

Exercise 1

Number to 4

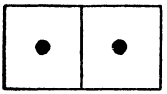
One 1



$1 + 0 =$

$0 + 1 =$

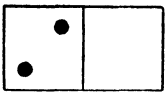
Two 2



$1 + 1 =$

2 ones =

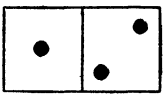
Two 2



$2 + 0 =$

$0 + 2 =$

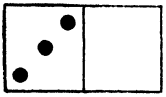
Three 3



$1 + 2 =$

$2 + 1 =$

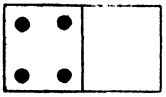
Three 3



$3 + 0 =$

$0 + 3 =$

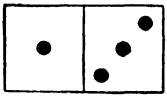
Four 4



$4 + 0 =$

$0 + 4 =$

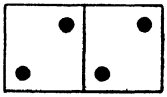
Four 4



$1 + 3 =$

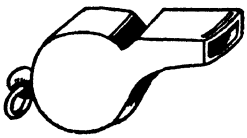
$3 + 1 =$

Four 4



$2 + 2 =$

2 twos =



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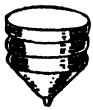
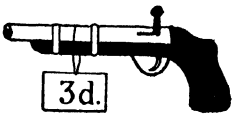
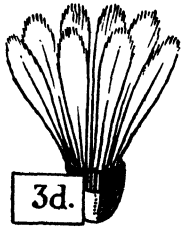


1d.



3d.



3d.

Exercise 1

Number to 4

A. PRACTICAL WORK

Illustrate ideas and processes by means of marbles, counters, etc. Dictate the problem, as:

(*a*) How many counters are 1 counter and 1 counter? The pupil arranges counters as O O and gives his answer orally (2 counters).

(*b*) How many are 2 ones? (*c*) 2 take away 1; 2 take away 2. (*d*) How many ones in 2?

The processes of addition, multiplication, subtraction, and division should be taken in turn. The teacher dictates each problem, the pupil arranges his counters and expresses his answer orally (see (*a*) above).

Repeat (*a*), (*b*), (*c*) and (*d*) for 3 and for 4.

Note: The terms addition, multiplication, subtraction, and division should not be used until the pupils are familiar with the processes. Until then, state $2 + 1$ as 2 and 1; 2×1 as 2 ones; $2 - 1$ as 2 take away 1; and $2 \div 2$ as 2 share by 2.

B. PICTORIAL WORK

(Based on the pictures, pupil's page)

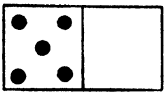
1. Look at the pennies. How many altogether? (4)
2. How are the pennies arranged? (in twos); 2 twos? (4); 2 and 2? (4)
3. How much does a top cost? (1*d.*); a whistle? (2*d.*); a shuttlecock? (3*d.*)
4. Buy a top and a whistle. How much do they cost? (3*d.*)
5. Buy a top and a shuttlecock. How much do they cost? (4*d.*)
6. Buy 2 whistles. How much? (4*d.*)
7. How much more than a whistle does a shuttlecock cost? (1*d.*)
8. Spend 4*d.* on the toys. What could you buy?

etc. etc.

Exercise 2

Number to 6

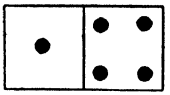
Five 5



$5 + 0 =$

$0 + 5 =$

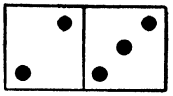
Five 5



$1 + 4 =$

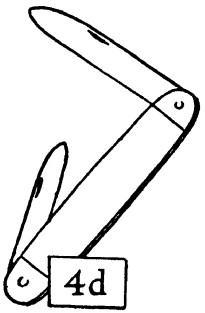
$4 + 1 =$

Five 5

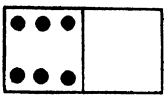


$2 + 3 =$

$3 + 2 =$



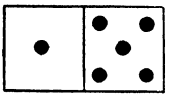
Six 6



$6 + 0 =$

$0 + 6 =$

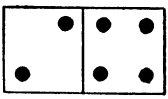
Six 6



$1 + 5 =$

$5 + 1 =$

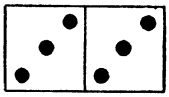
Six 6



$2 + 4 =$

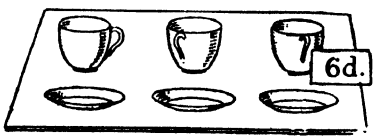
$4 + 2 =$

Six 6



$3 + 3 =$

2 threes =



Exercise 2

Number to 6

A. PRACTICAL WORK

Extend practical work (see Ex. 1) to number, 1–6.

B. PICTORIAL WORK

(Based on the pictures, pupil's page)

1. How many soldiers altogether? (6)
2. How are the soldiers arranged? (in twos); 2 twos? (4); 3 twos? (6)
3. 6 soldiers take away 2? (4); 6 soldiers take away 4? (2)
4. How many pennies altogether? (6)
5. How are the pennies arranged? (in threes); 2 threes? (6)
6. How many cups? (3) How many saucers? (3)
7. How much more than the teapot does the set of cups and saucers cost? (3*d.*)

etc. etc.

C. MECHANICAL DICTATED

1. 3 + 2 (5); 2 and 4 (6); 3 and 0 (3); etc.
2. 2 twos (4); 3 twos (6); 2 threes (6); 1 two (2); etc.
3. 2 take away 1 (1); 3 take away 3 (0); 4 take away 0 (4).
4. How many twos in (*a*) 2? (1); in 4? (2); in 6? (3)

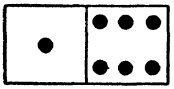
D. EASY WORD SUMS

1. A boy has 2 marbles and wins 4. How many has he then? (6)
2. Two balls at 3*d.* each. How many pennies needed? (6)
3. Spend 4*d.* out of 6*d.* How much left? (2*d.*)
4. Arrange 6 matches in twos. How many twos? (3)

Exercise 3

Number to 8

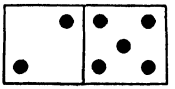
Seven 7



$1 + 6 =$

$6 + 1 =$

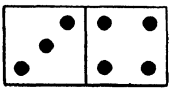
Seven 7



$2 + 5 =$

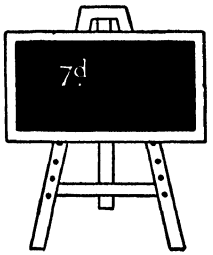
$5 + 2 =$

Seven 7

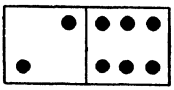


$3 + 4 =$

$4 + 3 =$



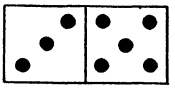
Eight 8



$2 + 6 =$

$6 + 2 =$

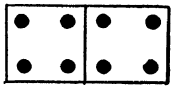
Eight 8



$3 + 5 =$

$5 + 3 =$

Eight 8

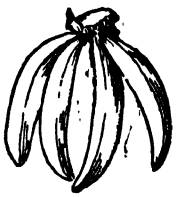


$4 + 4 =$

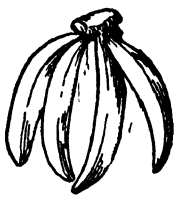
2 fours =

1*d*. each

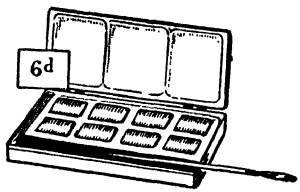
1*d*. each



8*d*. the bunch



8*d*. the bunch



Exercise 3

Number to 8

A. PRACTICAL WORK

Practical work (see Ex. 1) extended to number, 1–8.

B. PICTORIAL WORK

(Based on the pictures, pupil's page)

1. Look at the dominoes. Which two numbers together make 7? Which two numbers together make 8?
2. How many dominoes are there altogether? (6)
3. How many horse soldiers altogether? (8)
4. How are the horse soldiers arranged? (in fours) How many fours? (2)
5. Six horse soldiers are killed. How many left? (2)
6. Arrange the horse soldiers in twos. How many twos? (4)
7. How many bunches of bananas? (2) How many in each bunch? (4)
8. How many bananas altogether? (8)
9. How much for 1 banana? (2*d.*)
10. Spend 8*d.* in buying things in the picture; etc., etc.

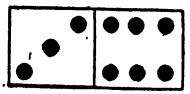
C. EASY WORD SUMS

1. A 6*d.* boat and a 2*d.* kite. Total cost? (8*d.*)
2. Buy 3 penny stamps with a sixpence. Change? (3*d.*)
3. How many 3*d.* balls for 6*d.*? (2)
4. How many wheels on two motor-cars? (8)
5. How much left out of 8*d.* after buying a 6*d.* Savings Stamp? (2*d.*)
6. Five horses in one field and three in another. How many horses in the two fields? (8)

Exercise 4

Number to 9

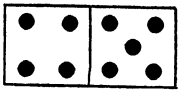
Nine 9



$3 + 6 =$

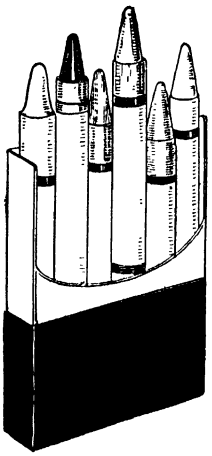
$6 + 3 =$

Nine 9

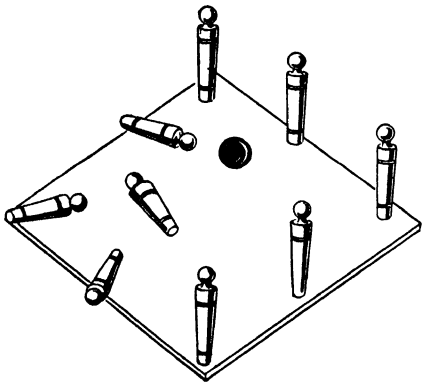


$4 + 5 =$

$5 + 4 =$



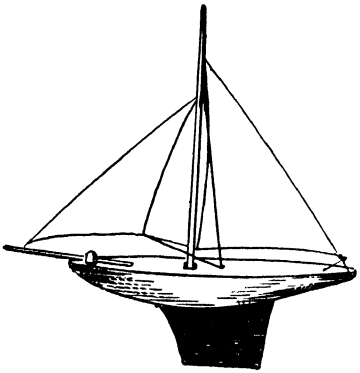
4*d.*



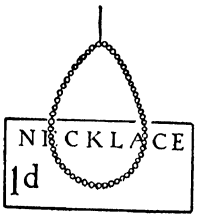
Skittles - 8*d.* the set

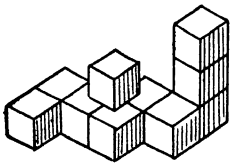
Ball - - 1*d.*

2*d.*



3*d.*





5*d.* **the set**

6*d.*

Exercise 4

Number to 9

A. PRACTICAL WORK

Number 1 to 9 (See Ex. 1).

B. PICTORIAL WORK

(Based on the pictures, pupil's page)

1. Look at the dominoes. Which two numbers together make 9?
2. How many skittles altogether? (9)
3. How many are down? (4) Up? (5)
4. If 2 more are knocked down, how many will be left standing? (3)
5. 4 down with the first ball, 2 with the second, and 2 with the third. How many left standing? (1)
6. Buy the crayons and the blocks (9*d.*); the skittles and the ball (9*d.*); etc.
7. How much more for the skittles than the ball? (7*d.*); the teddy bear than the yacht? (3*d.*); etc.

C. PLAYING GAMES

Games, such as darts, skittles, etc., should be played by the children during the arithmetic lesson. The children will be pleased to bring their games to school for this purpose.

A Game of Skittles.

How many down with the first ball? How many left standing? How many down with the second ball? How many now left standing? etc., etc.

Each player should keep his own score.

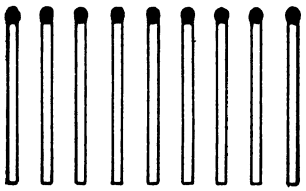
D. WORD SUMS

The pupils should be trained to make up their own word sums. A beginning can be made here, as: Make up a word sum about a game of skittles.

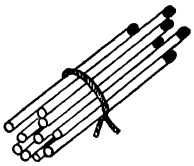
Exercise 5

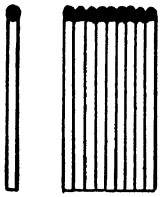
Number to 10

Nine **9**

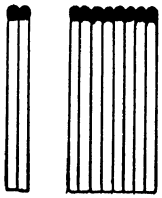


Ten **10**

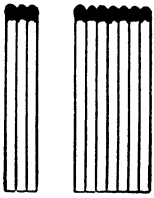




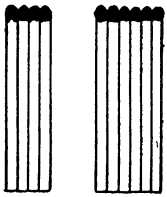
1 + 9 =
9 + 1 =



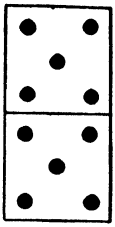
2 + 8 =
8 + 2 =



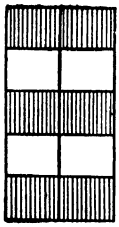
3 + 7 =
7 + 3 =



4 + 6 =
6 + 4 =

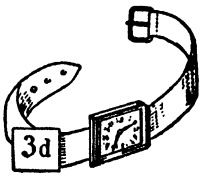


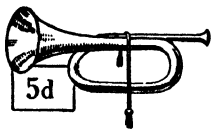
5 + 5 =
2 fives =

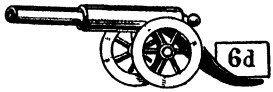


2 + 2 + 2 + 2 + 2
= 5 twos =

1	2	3	4	5
6	7	8	9	10







Exercise 5

Number to 10

A. PRACTICAL WORK

Stand 10 children in a row before the class.

1. Count them aloud, touching each pupil as: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10.
2. Arrange yourselves as: 1 111111111; $1 + 9 = ?$; $9 + 1 = ?$
   Then, as: 11 11111111; $2 + 8 = ?$; $8 + 2 = ?$
   Continue this work to show: $3 + 7 = ?$; $4 + 6 = ?$
   $7 + 3 = ?$; $6 + 4 = ?$
3. By means of the 10 children, show: $10 - 1$; $10 - 2$; $10 - 3$; etc., etc.
4. Arrange yourselves in two equal groups. How many in each group? (5)
   2 fives = ?; $2 \times 5 = ?$
5. Arrange yourselves in twos. Count by twos, as: 2, 4, 6, 8, 10.
   $2 + 2 + 2 + 2 + 2 = ?$; 5 twos = ?; $5 \times 2 = ?$

B. PICTORIAL WORK

(Based on the pictures, pupil's page)

1. How many single matches in the first picture? (9) Count them aloud, as 1, 2, etc., etc.
2. How many matches in the bundle? (10); $9 + 1 = ?$; $10 - 9 = ?$
3. Look at the first picture in the second row. How are the matches arranged? (1 single match; then 9 together; $1 + 9 = ?$; $9 + 1 = ?$)
4. Look at the second picture in the second row. How are the matches arranged? (1 group of 2; then 1 group of 8; $2 + 8 = ?$; $8 + 2 = ?$)
5. Third picture. ($3 + 7 = ?$; $7 + 3 = ?$) Fourth picture. ($4 + 6 = ?$; $6 + 4 = ?$)
6. Look at the domino *ten*. ($5 + 5 = ?$; 2 fives = ?)
7. Look at the second picture in the third row. ($2 + 2 + 2 + 2 + 2 = ?$; 5 twos = ?)
8. How many squares in picture 3, row 3? (10) Count them forwards. Count them backwards.
9. Buy the trumpet and wrist-watch. How much needed? (8*d.*)
10. Buy the jug, wrist-watch and trumpet. How much needed? (10*d.*)
11. How much more for the gun than (*a*) the jug? (4*d.*); (*b*) the wrist-watch? (3*d.*)
12. Spend (*a*) 9*d.*; (*b*) 8*d.* buying toys in the picture.

Exercise 6

Number. Addition

A

$1 + 2 =$
$4 + 1 =$
$2 + 3 =$
$4 + 2 =$
$1 + 6 =$
$5 + 0 =$
$3 + 4 =$
$0 + 7 =$
$1 + 4 =$
$0 + 0 =$

B

$3 + 5 =$
$1 + 5 =$
$4 + 2 =$
$5 + 4 =$
$0 + 3 =$
$6 + 1 =$
$2 + 2 =$
$3 + 5 =$
$7 + 2 =$
$0 + 6 =$

C

$2 + 7 =$
$2 + 2 =$
$1 + 7 =$
$2 + 4 =$
$4 + 0 =$
$3 + 2 =$
$5 + 1 =$
$3 + 3 =$
$4 + 3 =$
$4 + 5 =$

D

$5 + 3 =$
$0 + 5 =$
$4 + 4 =$
$1 + 3 =$
$7 + 1 =$

E

$2 + 0 =$
$5 + 2 =$
$3 + 6 =$
$0 + 1 =$
$5 + 4 =$

F

$2 + 5 =$
$6 + 3 =$
$8 + 0 =$
$2 + 6 =$
$6 + 0 =$

G

$1 + 1 + 1 =$
$3 + 2 + 0 =$
$1 + 3 + 4 =$
$1 + 6 + 2 =$
$2 + 3 + 3 =$

H

$2 + 2 + 2 =$
$3 + 4 + 2 =$
$1 + 3 + 5 =$
$5 + 3 + 0 =$
$4 + 4 + 1 =$

K

$3 + 3 + 3 =$
$2 + 5 + 2 =$
$4 + 2 + 3 =$
$0 + 7 + 0 =$
$2 + 4 + 2 =$

Exercise 6

Number. Addition

ADDITION AND SUBTRACTION TABLE (2–10)

2	1	2							
	1	0							
3	1	2	3						
	2	1	0						
4	1	3	2	4					
	3	1	2	0					
5	1	4	2	3	5				
	4	1	3	2	0				
6	1	5	2	4	3	6			
	5	1	4	2	3	0			
7	1	6	2	5	3	4	7		
	6	1	5	2	4	3	0		
8	1	7	2	6	3	5	4	8	
	7	1	6	2	5	3	4	0	
9	1	8	2	7	3	6	4	5	9
	8	1	7	2	6	3	5	4	0
10	1	9	2	8	3	7	4	6	5	10
	9	1	8	2	7	3	6	4	5	0

Copy out on a large piece of cardboard the addition and subtraction table given above.

Exercises on the table.

1. Take each line in turn, as: $\begin{cases} 1+1=?;\ 2+0=?;\ 0+2=? \\ 2-1=?;\ 2-2=?;\ 2-0=? \end{cases}$
2. What number added to 2 will make 3, 4, 5, 6, 7, 8, 9, 10?
3. Repeat No. 2 for 3, 4, 5, 6 to make 10, 9, 8, 7, 6?
4. What number must be taken from 10 to leave 7, 5, 9, 6, 2, 3, 1, 4?
5. $7+2=?;\ 3+5=?;\ 6+4=?$; etc., etc.
6. $4+?=10;\ 5+?=9;\ 8+?=10$; etc., etc.
7. $7-3=?;\ 10-2=?;\ 10-5=?$; etc., etc.
8. 2 twos = ?; 2 threes = ?; 2 fours = ?; etc., etc.
9. $2\times 2=?;\ 2\times 3=?;\ 2\times 4=?$; etc., etc.

Exercise 7

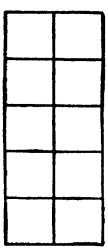
Number. Addition and Subtraction

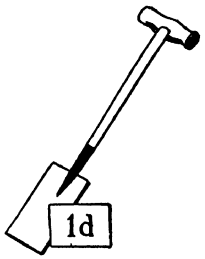
A

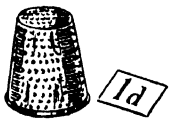
$3 + ? = 5$
$4 + ? = 7$
$5 + ? = 5$
$? + 4 = 8$
$1 + ? = 9$
$? + 6 = 8$
$2 + ? = 6$
$6 + ? = 7$
$? + 3 = 6$
$0 + ? = 4$

B

$5 - 2 =$
$7 - 3 =$
$5 - 0 =$
$8 - 4 =$
$9 - 8 =$
$8 - 2 =$
$6 - 4 =$
$7 - 1 =$
$6 - 3 =$
$4 - 4 =$





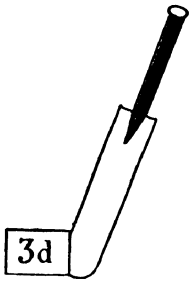


C

$2 + 8 =$
$3 + 7 =$
$5 + 5 =$
$1 + 9 =$
$4 + 6 =$
$10 + 0 =$
$7 + 3 =$
$6 + 4 =$
$9 + 1 =$
$8 + 2 =$

D

$8 + ? = 10$
$10 + ? = 10$
$? + 9 = 10$
$4 + ? = 10$
$? + 7 = 10$
$2 + ? = 10$
$5 + ? = 10$
$? + 6 = 10$
$9 + ? = 10$
$7 + ? = 10$



E

$4 + 3 + 3 =$
$3 + 2 + 5 =$
$7 + 2 + 1 =$

F

$10 - 7 =$
$10 - 4 =$
$10 - 6 =$

Exercise 7

Number. Addition and Subtraction

A. PRACTICAL WORK

1. Arrange 10 matches in a row. Take away 2. How many left? (8)
2. Take away 2 more. How many left now? (6)
3. Continue taking away twos. How many times can 2 be taken from 10? (5)
4. Arrange 10 matches in groups of 2. How many groups? (5)
   $(10 \div 2 = ?)$
5. Arrange 10 matches in groups of 5. How many groups? (2)
   $(10 \div 5 = ?)$

The Ruler. An Introduction.

Let each pupil in the class have a ruler. Talk about the ruler and how it is used for measurement. Make it quite clear that the word *inch* is connected with the space between any two inch marks. Let the pupils use their rulers to measure the lengths of strips of cardboard (2 inches; 5 inches; 3 inches, etc.) previously prepared by the teacher.

Exercises on the Ruler.

1. Pointing out inches on the ruler. Using two fingers, point out 1 inch, 2 inches, etc.
2. Measure the strips of cardboard beginning with the shortest.
3. Drawing lines, inches only, e.g. 3 inches. On your paper make a dot with your pencil. (Teacher will demonstrate on the blackboard with ruler and chalk at each stage.) Place your ruler so that the first long mark (0) is just under the dot. Measure the spaces — 1, 2, 3 inches — and then make another dot. Draw a line joining up the dots.

B. PICTORIAL WORK

(Based on the pictures, pupil's page)

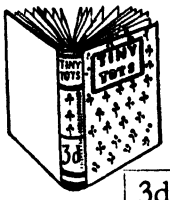
1. How many squares in the picture? (10) How are they arranged? (in twos; or in fives)
2. How many twos are there? (5) How many fives are there? (2)
   $5 \times 2 =$; $2 \times 5 =$.
3. Read $2 \times 3 = 6$; $4 \times 2 = 8$; etc., etc.
4. Buy the doll, the bat, the bucket and the spade. How much needed? (10*d.*)
5. How much more for the doll than the thimble? (3*d.*)
6. How much needed for 5 buckets? (10*d.*); etc., etc.

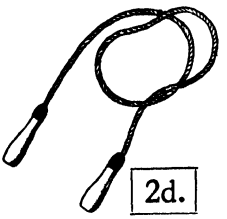
Exercise 8

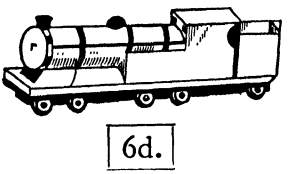
Number to 20

 ten	 one	10 + 1 = 11
 ten	 two	10 + 2 = 12
 ten	 three	10 + 3 = 13
 ten	 four	10 + 4 = 14
 ten	 five	10 + 5 = 15
 ten	 six	10 + 6 = 16
 ten	 seven	10 + 7 = 17
 ten	 eight	10 + 8 = 18
 ten	 nine	10 + 9 = 19
 ten	 ten	10 + 10 = 20

Begin at 1 and write all the numbers up to 20, as: 1, 2, 3, 4, . .







Exercise 8

Number to 20

A. PRACTICAL WORK

Bundles of 10 sticks (matches) should be used to represent *tens*, and single sticks (matches) to represent *units*.

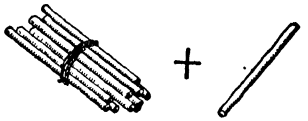
1. Practical work to show that $10 + 1 = 11$; $10 + 2 = 12$; . . . $10 + 10 = 20$.
Practical work and blackboard work should go hand in hand in these exercises.

Practical Work

Tell the children to show 1 ten group and 1 unit. When this has been done write it on the blackboard as shown.

(See column *Blackboard Work.*)

Blackboard Work



One ten group and one make eleven

$10 + 1 = 11$

Complete, in a similar manner, the numbers up to 20.

2. What number comes before 15? What number comes after 16? etc., etc. As each correct answer is given the children should be instructed to lay out their sticks to show it.

3. Give a series of practical exercises on $\left.\begin{matrix} 10 + 1 = 11 \\ 11 - 1 = 10 \end{matrix}\right\}$; $\left.\begin{matrix} 10 + 7 = 17 \\ 17 - 10 = 7 \\ 17 - 7 = 10 \end{matrix}\right\}$ etc.

B. WRITING NUMBERS FROM DICTATION

The teacher should arrange for the numbers dictated to be written in columns under the headings, tens, units, as:

Tens	Units
T.	U.
1	5
1	9
1	6

C. PICTORIAL WORK

(Based on the pictures, pupil's page)

For typical examples, see page 7*a*.

Exercise 9

Number. Addition and Subtraction

A	B	C
$10 + 7 =$	$4 + 2 =$; $14 + 2 =$	$3 - 1 =$; $13 - 1 =$
$10 + 1 =$	$2 + 6 =$; $12 + 6 =$	$8 - 3 =$; $18 - 3 =$
$10 + 3 =$	$1 + 4 =$; $11 + 4 =$	$7 - 2 =$; $17 - 2 =$
$10 + 9 =$	$5 + 5 =$; $15 + 5 =$	$10 - 7 =$; $20 - 7 =$
$10 + 2 =$	$7 + 2 =$; $17 + 2 =$	$6 - 6 =$; $16 - 6 =$
$10 + 6 =$	$3 + 7 =$; $13 + 7 =$	$7 - 4 =$; $17 - 4 =$
$10 + 5 =$	$3 + 5 =$; $13 + 5 =$	$8 - 7 =$; $18 - 7 =$
$10 + 8 =$	$5 + 1 =$; $15 + 1 =$	$9 - 5 =$; $19 - 5 =$
$10 + 4 =$	$5 + 4 =$; $15 + 4 =$	$9 - 8 =$; $19 - 8 =$
$10 + 10 =$	$2 + 3 =$; $12 + 3 =$	$6 - 1 =$; $16 - 1 =$

D	E	F
$19 - 10 =$	$7 + 6 =$	$4 + 7 =$
$15 - 10 =$	$9 + 4 =$	$7 + 5 =$
$11 - 10 =$	$5 + 9 =$	$8 + 7 =$
$16 - 10 =$	$7 + 9 =$	$8 + 8 =$
$18 - 10 =$	$5 + 7 =$	$5 + 8 =$
$14 - 10 =$	$3 + 9 =$	$9 + 9 =$
$13 - 10 =$	$6 + 5 =$	$8 + 4 =$
$17 - 10 =$	$8 + 6 =$	$2 + 9 =$
$12 - 10 =$	$9 + 8 =$	$7 + 9 =$
$20 - 10 =$	$4 + 8 =$	$9 + 6 =$

G

1. Count by twos up to 20, as: 2, 4, 6, . . . Then count backwards from 20 in twos, as: 20, 18, 16, . . .
2. Count by twos up to 19, as: 1, 3, 5, . . . 19, and back again.

Exercise 9

Number. Addition and Subtraction

NUMBER RELATIONSHIP UP TO 20

As number relationship up to 20 is the key to all other relationships in number the teacher should make provision for an intensive study of " twenty ".

20 = 1 score.

Step 1*a*. $10 + 1 = ?$; $10 + 2 = ?$ . . . $10 + 10 = ?$ (See previous exercise, teacher's page.)

Step 1*b*. $20 - 1 = ?$; $20 - 2 = ?$ . . . $20 - 20 = ?$

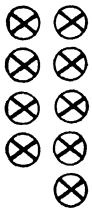
Step 2. Connection between numbers within the first *ten* and corresponding numbers within the second *ten*, as:

(*a*) $4 + 4 = ?$; $14 + 4 = ?$ | $2 + 7 = ?$; $12 + 7 = ?$; etc.

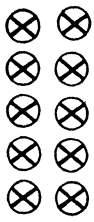
(*b*) $4 - 4 = ?$; $14 - 4 = ?$ | $5 - 3 = ?$; $15 - 3 = ?$; etc.

Step 3. Bridging the *ten*, e.g. $9 + 3$.

Practical work, using matches or counters, should be the order here.



$9 + 3 = 10 + 2$



(*a*) $7 + 8 = ?$; $8 + 7 = ?$ | $6 + 9 = ?$; $9 + 6 = ?$ | $8 + 5 = ?$; etc. $5 + 8 = ?$; etc.

(*b*) $15 - 8 = ?$; $17 - 9 = ?$; $15 - 6 = ?$; etc.

Note on Step 3(*a*). Until the results of the addition of any two units become " finger end " knowledge little progress can be expected. When the results have been arrived at practically they should be memorized.

Addition. Table Items. (Step 3*a*)

$2 + 3$; $2 + 4$; $2 + 5$; . . . $2 + 9$

$3 + 4$; $3 + 5$; $3 + 6$; . . . $3 + 9$

| |

$7 + 8$; $7 + 9$

$8 + 9$

Exercise 10

Number. Addition

	A	B	C	D	E	F
	t.u.	*t.u.*	*t.u.*	*t.u.*	*t.u.*	*t.u.*
1.	10	13	12	13	14	13
	+ 3	+ 4	+ 5	+ 6	+ 1	+ 6
	—	—	—	—	—	—
	t.u.	*t.u.*	*t.u.*	*t.u.*	*t.u.*	*t.u.*
2.	15	14	11	12	15	12
	+ 0	+ 5	+ 7	+ 6	+ 4	+ 7
	—	—	—	—	—	—
	t.u.	*t.u.*	*t.u.*	*t.u.*	*t.u.*	*t.u.*
3.	7	6	5	2	9	10
	+ 3	+ 4	+ 5	+ 8	+ 1	+ 0
	—	—	—	—	—	—
	t.u.	*t.u.*	*t.u.*	*t.u.*	*t.u.*	*t.u.*
4.	8	5	6	7	3	4
	+ 7	+ 9	+ 7	+ 4	+ 8	+ 9
	—	—	—	—	—	—
	t.u.	*t.u.*	*t.u.*	*t.u.*	*t.u.*	*t.u.*
5.	9	6	5	9	7	8
	+ *	+ *	+ *	+ *	+ *	+ *
	12	14	12	16	15	17

6. How long is each line?

(*a*) _____

(*b*) _____

(*c*) _____

	(*a*)	(*b*)	(*c*)	(*d*)	(*e*)
7.	4 × 2 =	2 × 4 =	5 × 2 =	6 × 2 =	7 × 2 =
	3 × 2 =	2 × 3 =	2 × 5 =	2 × 6 =	2 × 7 =

Exercise 10

Number. Addition

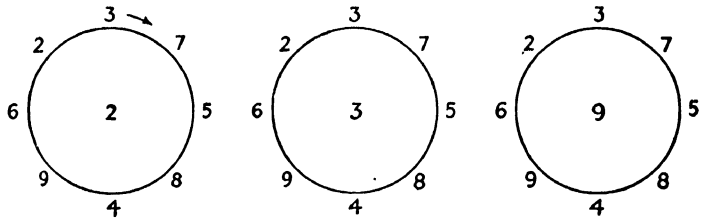
ADDITION AND SUBTRACTION TABLE (11–18)

11	9	2	8	3	7	4	6	5
	2	9	3	8	4	7	5	6
12	9	3	8	4	7	5	6	
	3	9	4	8	5	7	6	
13	9	4	8	5	7	6		
	4	9	5	8	6	7		
14	9	5	8	6	7			
	5	9	6	8	7			
15	9	6	8	7				
	6	9	7	8				
16	9	7	8					
	7	9	8					
17	9	8						
	8	9						
18	9							
	9							

Copy out this table on the cardboard which contains the previous addition and subtraction table (page 6*a*). When the tables have been learnt in a straightforward manner it will be necessary to use and test the table items at frequent intervals before they will become automatic, as they must be. Ring work will prove most useful for practice purposes.

Ring Work for Practice. (Addition Table.)

Add each figure on the outside to the figure within; then the figure within to each figure on the outside.



1st ring { 2 + 3 = 5; 2 + 7 = 9; etc. / 3 + 2 = 5; 7 + 2 = 9; etc.

2nd ring { 3 + 3 = 6; 3 + 7 = 10; etc. / 7 + 3 = 10; etc.

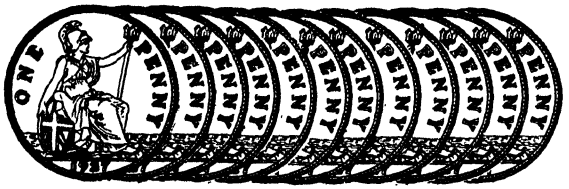
3rd ring { 9 + 3 = 12; 9 + 7 = 16; etc. / 3 + 9 = 12; 7 + 9 = 16; etc.

Continue as shown, changing the centre figure each time, up to 9.

(See page 11*a* for Speed and Accuracy Test. (Tables.))

Exercise 11

Money to 1s.

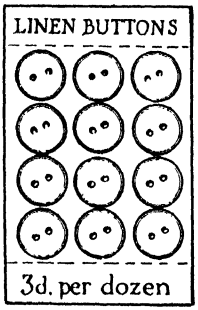


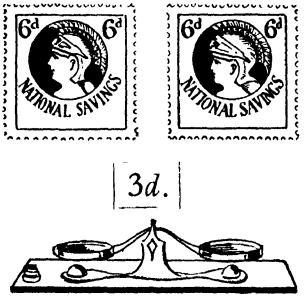
12 pence = 1 shilling;

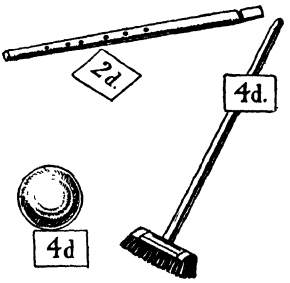
12*d.* = 1*s.* (1/-)

6 pence = 1 sixpence;

2 sixpences (or 12*d.*) = 1*s.*







ORAL WORK — SHOPPING SUMS

(*a*) How much is needed for:

1. 1 stamp and 1 brush?
2. 1 doll and 1 whistle?
3. 1 ball, 1 brush, and 1 set of scales?

How much is needed for:

4. (*a*) 6 whistles? (*b*) 3 balls? (*c*) 2 brushes? (*d*) 2 sets of scales?

(*b*) How much change from 1 shilling if we buy:

1 doll?
1 brush and 1 ball?
1 set of scales?

Exercise 11

Money to 1s.

ORAL ANSWERS

	1	8	3	6	5	2	7	9	4
9									
5									
1									
7									
3									
6									
4									
8									
2									

Speed and Accuracy Test.

(Addition Table.) See page 10*a*.

Supply each pupil with a cyclostyled copy of the test chart shown, and note how long it takes each child to complete the test. Keep a record of the time taken and the number of items correct. Repeat the test at intervals, recording for each child, each time, the number of items correct and the time taken. In this manner progress will be indicated.

A. PRACTICAL WORK

The number 12 is most important. 12*d.* = 1 shilling; 12 in. = 1 foot; 12 = 1 dozen; 12 months = 1 year.

1. Using real or imitation coins show: (*a*) 12*d.* = 1/-; 2 sixpences = 1 shilling; 8*d.* + 4*d.* = 1*s.*; 3*d.* + 9*d.* = 1/-; etc.
2. Using sticks, matches, or counters, show: 12 = 1 dozen.
3. Ruler work. 12 inches = 1 foot.

Shopping Exercises.

Set up a shop to sell rulers, pens, pencils, exercise books. Ticket the articles as [1*d.*], [3*d.*], etc., keeping them to pence only. Let the pupils, in turn, be the shopkeeper and see that there is plenty of change ready to hand.

Using real or imitation coins, buy:

(*a*) With a shilling, an exercise book. See that you get the correct change.

(*b*) With a sixpence, 2 pencils, and see that you get the correct change.

(*c*) With a shilling, 2 articles at 2*d.* each and 1 at 3*d.* See that you get the correct change.

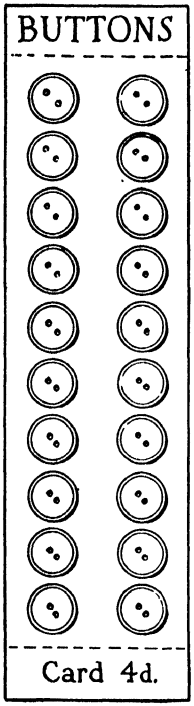
B. PICTORIAL WORK

(Based on the pictures, pupil's page)

Addition, subtraction, multiplication, and division of money — money not to exceed 12*d.* (1*s.*). (See pupil's page.)

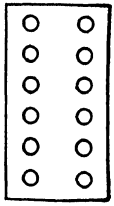
Exercise 12

Tables and Table Work

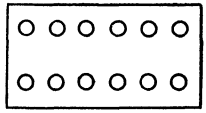


Count the buttons in *twos*, as: 2, 4, 6, 8, . . . 20.

$2 = 1$ two $= 1 \times 2 =$
$2+2 = 2$ twos $= 2 \times 2 =$
$2+2+2 = 3$ twos $= 3 \times 2 =$
$2+2+2+2 = 4$ twos $= 4 \times 2 =$
$2+2+2+2+2 = 5$ twos $= 5 \times 2 =$
$2+2+2+2+2+2 = 6$ twos $= 6 \times 2 =$
$2+2+2+2+2+2+2 = 7$ twos $= 7 \times 2 =$
$2+2+2+2+2+2+2+2 = 8$ twos $= 8 \times 2 =$
$2+2+2+2+2+2+2+2+2 = 9$ twos $= 9 \times 2 =$
$2+2+2+2+2+2+2+2+2+2 = 10$ twos $= 10 \times 2 =$



6 twos



2 sixes

$6 \times 2 = 2 \times 6$

A	B	C	D	E
$1 \times 2 =$	$2 \times 1 =$	$1 \times ? = 2$	$2 \div 2 =$	
$6 \times 2 =$	$2 \times 6 =$	$6 \times ? = 12$	$12 \div 2 =$	$12 \div 6 =$
$9 \times 2 =$	$2 \times 9 =$	$9 \times ? = 18$	$18 \div 2 =$	$18 \div 9 =$
$3 \times 2 =$	$2 \times 3 =$	$3 \times ? = 6$	$6 \div 2 =$	$6 \div 3 =$
$5 \times 2 =$	$2 \times 5 =$	$5 \times ? = 10$	* $10 \div 2 =$	$10 \div 5 =$
$8 \times 2 =$	$2 \times 8 =$	$8 \times ? = 16$	$16 \div 2 =$	$16 \div 8 =$
$2 \times 2 =$	$2 \times 2 =$	$2 \times ? = 4$	$4 \div 2 =$	$4 \div 2 =$
$7 \times 2 =$	$2 \times 7 =$	$7 \times ? = 14$	$14 \div 2 =$	$14 \div 7 =$
$4 \times 2 =$	$2 \times 4 =$	$4 \times ? = 8$	$8 \div 2 =$	$8 \div 4 =$
$10 \times 2 =$	$2 \times 10 =$	$10 \times ? = 20$	$20 \div 2 =$	$20 \div 10 =$

Arrange counters to show that (*a*) $4 \times 2 = 2 \times 4$; (*b*) $3 \times 2 = 2 \times 3$; (*c*) $5 \times 2 = 2 \times 5$; (*d*) $7 \times 2 = 2 \times 7$; (*e*) $8 \times 2 = 2 \times 8$; (*f*) $9 \times 2 = 2 \times 9$; (*g*) $10 \times 2 = 2 \times 10$.

Exercise 12

Tables and Table Work

A. PRACTICAL WORK

1. Building up the tables. Use matches or counters, as:

O O	1 two = 2 $\quad 1 \times 2 = 2$
O O O O	2 twos = 4 $\quad 2 \times 2 = 4$

2. By means of matches or counters, show:

$\begin{cases} 3 \times 2 = 6 \\ 2 \times 3 = 6 \end{cases}$; $\begin{cases} 6 \div 2 = 3 \\ 6 \div 3 = 2 \end{cases}$; $\begin{cases} 4 \times 2 = 8 \\ 2 \times 4 = 8 \end{cases}$; $\begin{cases} 8 \div 2 = 4 \\ 8 \div 4 = 2 \end{cases}$; etc.

3. Continue practical work to show: 13*d.* = 1*s.* 1*d.*; 14*d.* = 1*s.* 2*d.*; . . . 20*d.* = 1*s.* 8*d.*

B. TABLES AND TABLE WORK

Tables should be kept in line with number. Up to this stage we have dealt with number to 20. Table work, therefore, should not go beyond 20 (number), or 20*d.* = 1*s.* 8*d.* (money).

The correct form for tables — like groups — is: $1 \times 2 = 2$; $2 \times 2 = 4$; etc.

After a table has been built up it should be memorized. Build up and learn thoroughly the following multiplication and division tables, forwards and backwards.

Multiplication

Twos	Threes	Fours		Tens
$1 \times 2 = 2$	$1 \times 3 = 3$	$1 \times 4 = 4$	Continue for *fives*, sixes, sevens, eights, etc., up to tens, as:	$1 \times 10 = 10$
$2 \times 2 = 4$	$2 \times 3 = 6$	$2 \times 4 = 8$		$2 \times 10 = 20$
⋮	⋮	⋮		
$10 \times 2 = 20$	$6 \times 3 = 18$	$5 \times 4 = 20$		

Division

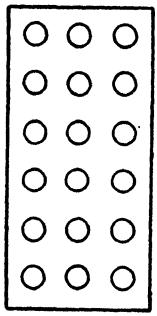
Twos			Tens
1 two in 2	or	1 into 2 goes 2	10 into 10 goes 1
2 twos in 4		2 into 4 goes 2	10 into 20 goes 2
⋮		⋮	
10 twos in 20		2 into 20 goes 10	

Continue for threes, fours, etc., up to tens, as:

(See teacher's page 13*a* for Pence Table)

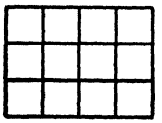
Exercise 13

Tables and Table Work

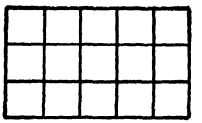
1. 

Count by threes to 18 and then back again:

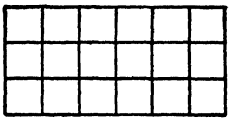
$3 = 1$ three $= 1 \times 3 =$
$3 + 3 = 2$ threes $= 2 \times 3 =$
$3 + 3 + 3 = 3$ threes $= 3 \times 3 =$
$3 + 3 + 3 + 3 = 4$ threes $= 4 \times 3 =$
$3 + 3 + 3 + 3 + 3 = 5$ threes $= 5 \times 3 =$
$3 + 3 + 3 + 3 + 3 + 3 = 6$ threes $= 6 \times 3 =$

2. 

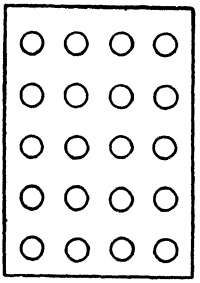
$4 \times 3 =$
$3 \times 4 =$
$12 \div 3 =$
$12 \div 4 =$



$5 \times 3 =$
$3 \times 5 =$
$15 \div 3 =$
$15 \div 5 =$



$6 \times 3 =$
$3 \times 6 =$
$18 \div 3 =$
$18 \div 6 =$

3. 

Count by fours to 20 and then back again:

$4 = 1$ four $= 1 \times 4 =$
$4 + 4 = 2$ fours $= 2 \times 4 =$
$4 + 4 + 4 = 3$ fours $= 3 \times 4 =$
$4 + 4 + 4 + 4 = 4$ fours $= 4 \times 4 =$
$4 + 4 + 4 + 4 + 4 = 5$ fours $= 5 \times 4 =$

4. $4 \times 4 =$; $5 \times 4 =$; $4 \times 5 =$; $16 \div 4 =$; $20 \div 5 =$; $20 \div 4 =$

	(*a*) s. d.	(*b*) s. d.	(*c*) *pence*
5.	$16d. =$	$6d. \times 2 =$	$20d. \div 4 =$
	$13d. =$	$3d. \times 6 =$	$18d. \div 3 =$
	$19d. =$	$2d. \times 7 =$	$1s.\ 2d. \div 2 =$
	$15d. =$	$5d. \times 3 =$	$1s.\ 4d. \div 4 =$
	$18d. =$	$5d. \times 4 =$	$1s.\ 3d. \div 3 =$

Exercise 13

Tables and Table Work

ANSWERS

4. 16; 20; 20; 4; 4; 5.

5*a*. 1*s*. 4*d*.; 1*s*. 1*d*.; 1*s*. 7*d*.; 1*s*. 3*d*.; 1*s*. 6*d*.

5*b*. 1*s*.; 1*s*. 6*d*.; 1*s*. 2*d*.; 1*s*. 3*d*.; 1*s*. 8*d*.

5*c*. 5*d*.; 6*d*.; 7*d*.; 4*d*.; 5*d*.

TABLE WORK

(Continued from previous page)

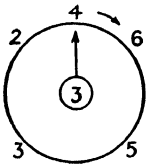
Pence Table

	s.	*d.*
12*d*. =	1	0
13*d*. =	1	1
⋮		
20*d*. =	1	8

Practice in Tables

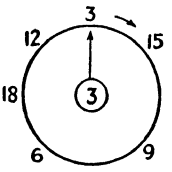
When the tables (see previous page) have been learnt it will be necessary to use and test them regularly before they will be finally fixed, as they must be. Ring work is excellent for practice purposes.

(1) Multiplication



4 × 3 = 12; 6 × 3 = 18; etc.

(2) Division



3 ÷ 3 = 1; 15 ÷ 3 = 5; etc.

Extension of Tables.

Table items will be added to each table as number is extended.

Multiplication and Division Table — twos

2	4	6	8	10	12	14	16	18	20
1	2	3	4	5	6	7	8	9	10

ORAL EXERCISES

1. How many must be added to 16 (15, 17, 12) to make 20? (4; 5; 3; 8)
2. How much do 2 (3, 4, 5, 6) threepenny cakes cost? (6*d*.; 9*d*.; 1*s*.; 1*s*. 3*d*.; 1*s*. 6*d*.)
3. How many legs altogether have 5 cows? (20)
4. I have 1 shilling and 4 pennies. How much more is wanted to make up 1*s*. 6*d*.? (2*d*.)

Mechanical Dictated.

1. 7 + 5 = ; 8 + 4 = ; 9 + 3 = ; 6 + 6 = ; 11 + 1 = ; 12 + 0 =
2. 12 − 7 = ; 12 − 6 = ; 12 − 3 = ; 12 − 10 = ; 12 − 2 = ; 12 − 0 =

Exercise 14

Number and Money (Table Work)

	(a)	(b)	(c)	(d)	(e)	(f)
1.	13 + 5	15 + 4	12 + 7	10 + 10	17 + 0	13 + 6
2.	5 + 5	8 + 2	7 + 8	9 + 4	6 + 7	8 + 3
3.	17 − 5 =	16 − 6 =	19 − 8 =	17 − 2 =	19 − 5 =	18 − 3 =
4.	7 − 4	9 − 5	8 − 2	6 − 1	10 − 7	5 − 2
5.	15 − 4	17 − 1	19 − 7	18 − 6	19 − 2	18 − 4
6.	4 × 2 =	3 × 4 =	2 × 5 =	6 × 2 =	4 × 3 =	7 × 2 =
7.	5 × 2 =	5 × 3 =	6 × 3 =	2 × 4 =	3 × 4 =	4 × 4 =
8.	3 × 5 =	0 × 4 =	2 × 6 =	3 × 2 =	3 × 3 =	9 × 2 =
9.	6 ÷ 2 =	12 ÷ 4 =	18 ÷ 3 =	16 ÷ 2 =	14 ÷ 7 =	12 ÷ 3 =
10.	16 ÷ 4 =	20 ÷ 10 =	20 ÷ 5 =	18 ÷ 6 =	15 ÷ 3 =	14 ÷ 2 =
11.	15 ÷ 5 =	9 ÷ 3 =	4 ÷ 2 =	12 ÷ 6 =	16 ÷ 8 =	6 ÷ 3 =

	(a)	(b)	(c)
	s. d.	*s. d.*	*s. d.* *pence*
12.	3*d.* × 4 =	1 4 ÷ 4 =	1 5 =
13.	8*d.* × 2 =	1 0 ÷ 2 =	1 2 =
14.	5*d.* × 4 =	1 3 ÷ 3 =	1 7 =
15.	7*d.* × 2 =	1 6 ÷ 6 =	1 1 =

	(a)	(b)	(c)
	s. d.	*s. d.*	*s. d.*
16.	17*d.* =	18*d.* =	20*d.* =
17.	15*d.* =	7*d.* + 6*d.* =	9*d.* + 7*d.* =

Exercise 14

Number and Money (Table Work)

ANSWERS

	(a)	(b)	(c)	(d)	(e)	(f)
1.	18	19	19	20	17	19
2.	10	10	15	13	13	11
3.	12	10	11	15	14	15
4.	3	4	6	5	3	3
5.	11	16	12	12	17	14
6.	8	12	10	12	12	14

	(a)	(b)	(c)	(d)	(e)	(f)
7.	10	15	18	8	12	16
8.	15	0	12	6	9	18
9.	3	3	6	8	2	4
10.	4	2	4	3	5	7
11.	3	3	2	2	2	2

12. 1*s.*; 4*d.*; 17*d.*

	(a)	(b)	(c)
13.	1*s.* 4*d.*	6*d.*	14*d.*
14.	1*s.* 8*d.*	5*d.*	19*d.*
15.	1*s.* 2*d.*	3*d.*	13*d.*
16.	1*s.* 5*d.*	1*s.* 6*d.*	1*s.* 8*d.*
17.	1*s.* 3*d.*	1*s.* 1*d.*	1*s.* 4*d.*

A. TABLES

(Continued from previous page)

A Ready Knowledge of Tables is necessary before real progress can be made in multiplication and division. A child who has to go through all the previous table items to arrive at an answer to the one in question cannot be said to have a ready knowledge of tables. Regular practice in table work is necessary if a " finger end " knowledge of tables is to be acquired.

Stress should be placed on the various interpretations of a table item, as:

$2 + 2 + 2 + 2 = 8$; 4 twos $= 8$; 2 fours $= 8$; $8 \div 2 = 4$; $8 \div 4 = 2$;
$\frac{1}{2}$ of $8 = 4$; $\frac{1}{4}$ of $8 = 2$

Practical work (arranging counters or matches) should be undertaken to show that $4 \times 2 = 2 \times 4$, as this makes the process of division ($8 \div 2 = 4$; $8 \div 4 = 2$) much easier to understand.

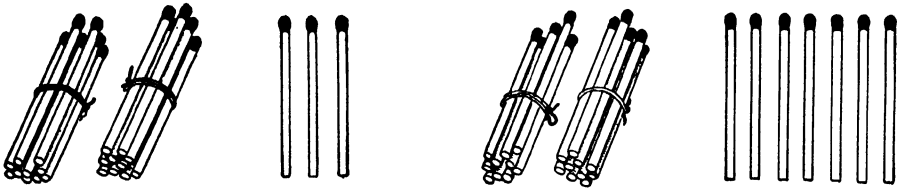
Diagrammatic work (see pupil's page, 13) will serve the same purpose.

B. EASY ORAL EXAMPLES

1. There are 7 cows and 8 sheep in a field. How many animals altogether? (15)
2. There are 5 books missing out of 20. How many are left? (15)
3. How many pence are 2 sixpences and 8*d.* more? (20)
4. How many shillings and pence in 20*d.*? (1*s.* 8*d.*)
5. Arrange 20 children in twos. How many twos? (10)

Exercise 15

Number to 30

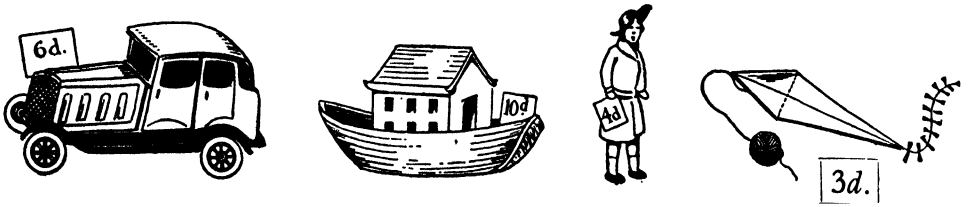


1. (*a*) How many sticks?
   10+10+3= ; 20+3= ;
   (*b*) How many sticks?
   10+10+7= ; 20+7=

	(*a*)			(*b*)		
2.	20 + 7 =	2 + 3 =	;	12 + 3 =	;	22 + 3 =
	20 + 1 =	5 + 4 =	;	15 + 4 =	;	25 + 4 =
	20 + 3 =	5 + 1 =	;	15 + 1 =	;	25 + 1 =
	20 + 9 =	3 + 5 =	;	13 + 5 =	;	23 + 5 =
	20 + 2 =	6 + 3 =	;	16 + 3 =	;	26 + 3 =
	20 + 6 =	7 + 2 =	;	17 + 2 =	;	27 + 2 =
	20 + 5 =	5 + 3 =	;	15 + 3 =	;	25 + 3 =
	20 + 8 =	1 + 4 =	;	11 + 4 =	;	21 + 4 =
	20 + 4 =	2 + 6 =	;	12 + 6 =	;	22 + 6 =
	20 + 10 =	4 + 2 =	;	14 + 2 =	;	24 + 2 =

	t.u.	*t.u.*	*t.u.*	*t.u.*	*t.u.*	*t.u.*	*t.u.*
3.	13	16	11	12	15	14	12
	+12	+13	+15	+16	+14	+13	+17

4. 3+7= ; 13+7= ; 23+7= 7+3= ; 17+3= ; 27+3=
   5+5= ; 15+5= ; 25+5= 6+4= ; 16+4= ; 26+4=
   4+6= ; 14+6= ; 24+6= 9+1= ; 19+1= ; 29+1=
   8+2= ; 18+2= ; 28+2= 2+8= ; 12+8= ; 22+8=
   1+9= ; 11+9= ; 21+9= 10+0= ; 20+0= ; 30+0=



Exercise 15
Number to 30

ANSWERS

(*a*)	(*b*)	3.	4.
27	5; 15; 25	25	10; 20; 30
21	9; 19; 29	29	10; 20; 30
23	6; 16; 26	26	10; 20; 30
29	8; 18; 28	28	10; 20; 30
22	9; 19; 29	29	10; 20; 30
26	9; 19; 29	27	10; 20; 30
25	8; 18; 28	29	10; 20; 30
28	5; 15; 25		10; 20; 30
24	8; 18; 28		10; 20; 30
30	6; 16; 26		10; 20; 30

A. PRACTICAL WORK

1. Number to 30. (*a*) Practical work to show: $20 + 1 = 21$; $20 + 2 = 22$; etc. Blackboard work should go hand in hand with the practical work. (See teacher's page, 8*a*.)
   (*b*) What number comes after 23; after 27; before 26; etc.? As each correct answer is given the children lay out their sticks (counters) to show it.
   (*c*) Show with your counters, 2 tens and 5. What is the number? Write it. Repeat the exercises for other numbers.
2. Tables extended to 30. (See teacher's page, 13*a*.)

B. PICTORIAL WORK

(Based on the pictures, pupil's page)

1. How much for the motor and the doll? (10*d*.); the motor, doll and kite? (1*s*. 1*d*.); etc.
2. How much more for the Ark than the motor? (4*d*.); the Ark than the doll? (6*d*.); etc.
3. Change from 1*s*. after buying (*a*) the doll (8*d*.); (*b*) the Ark (2*d*.)

C. WRITING NUMBERS FROM DICTATION

(See teacher's page, 8*a*)

D. THE FOUR PROCESSES

(a) Addition of numbers.

Difficulties should be introduced one at a time and this requires careful grading of the examples. The steps are:

1. 20 + 7. Adding singles to a *ten* group. (Examples 2*a*, pupil's page.)
2. 22 + 6. Keeping within the *tens* stated. (Examples 2*b*, pupil's page.)
3. 13 + 16. Keeping below the next *ten*, using tens and units in both lines. (Examples 3, pupil's page.)
4. 27 + 3. Completing the next *ten*. (Examples 4, pupil's page.)
5. 18 + 7. Bridging the *ten*. (Examples 1–4, next pupil's page, p. 16.)

Exercise 16

Number and Money. Addition

	(a)		(b)		(c)	
1.	t.u. 4 + 7	t.u. 14 + 7	t.u. 7 + 5	t.u. 17 + 5	t.u. 8 + 7	t.u. 18 + 7
2.	t.u. 8 + 8	t.u. 18 + 8	t.u. 9 + 9	t.u. 19 + 9	t.u. 8 + 4	t.u. 18 + 4
3.	t.u. 2 + 9	t.u. 12 + 9	t.u. 7 + 9	t.u. 17 + 9	t.u. 5 + 8	t.u 15 + 8
4.	t.u. 9 + 6	t.u. 19 + 6	t.u. 7 + 6	t.u. 17 + 6	t.u. 9 + 4	t.u. 19 + 4
5.	t.u. 9 + * 16	t.u. 19 + * 26	t.u 5 + * 12	t.u. 15 + * 22	t.u. 3 + * 12	t.u. 13 + * 22
6.	t.u. 5 + * 11	t.u. 15 + * 21	t.u. 8 + * 14	t.u. 18 + * 24	t.u. 9 + * 17	t.u. 19 + * 27
7.	s. d. 4 + 2	s. d. 1 4 + 2	s. d. 2 + 2	s. d. 1 2 + 2	s. d. 5 + 3	s. d. 1 5 + 3
8.	s. d. 5 + 7	s. d. 6 + 6	s. d. 3 + 9	s. d. 8 + 4	s. d. 10 + 2	s. d. 1 + 11
9.	s. d. 6 + 7	s. d. 8 + 6	s. d. 7 + 8	s. d. 9 + 6	s. d. 10 + 8	s. d. 8 + 8

Exercise 16

Number and Money

ANSWERS

	(*a*)	(*b*)	(*c*)
1.	11; 21	12; 22	15; 25
2.	16; 26	18; 28	12; 22
3.	11; 21	16; 26	13; 23
4.	15; 25	13; 23	13; 23
5.	7; 7	7; 7	9; 9
6.	6; 6	6; 6	8; 8
7.	6*d.*; 1*s.* 6*d.*	4*d.*; 1*s.* 4*d.*	8*d.*; 1*s.* 8*d.*
8.	1*s.* 0*d.*; 1*s.* 0*d.*	1*s.* 0*d.*; 1*s.* 0*d.*	1*s.* 0*d.*; 1*s.* 0*d.*
9.	1*s.* 1*d.*; 1*s.* 2*d.*	1*s.* 3*d.*; 1*s.* 3*d.*	1*s.* 6*d.*; 1*s.* 4*d.*

THE FOUR PROCESSES

(b) Subtraction. (Continued from previous page)

The complementary method is the one recommended.

Preparatory Work. $7 + ? = 9$; $6 + ? = 10$; $16 + ? = 20$; etc.

Graded exercises for introducing the difficulties one at a time.

1. 27 — 7. Units figure *same* in minuend and subtrahend. (Examples 1*a*, page 17.)
2. 27 — 4. Keeping within the tens stated. (Examples 1*b*, page 17.)
3. 27 — 10. Taking away a *ten*. (Examples 2*a*, page 17.)
4. 27 — 13. No carrying figures. (Examples 3, 4, 5, page 17.)
5. 27 — 18. Bridging the *ten*. (Examples 6, 7, 8, 9, page 17.)

Bridging the ten.

Example: 27 — 19

t.u.
27
19
8

Explanation of method. 9 and 8 make 17. Carry 1 ten
1 *ten* and 1 *ten* are 2 *tens*
2 and 0 are 2

Note: The numbers underlined (8 and 0) are written down.

ORAL EXERCISES

1. Tea 8*d.*, butter 9*d.* Total cost? (1*s.* 5*d.*)
2. 3 toys at 6*d.* each (1*s.* 6*d.*)
3. How many must I add to 23 to make 30? (7)
4. 4 balls of equal value cost 1*s.* 8*d.* How much each? (5*d.*)

Exercise 17

Number. Addition and Subtraction

1. (*a*)

$7-7=$; $17-7=$; $27-7=$
$9-9=$; $19-9=$; $29-9=$
$6-6=$; $16-6=$; $26-6=$
$4-4=$; $14-4=$; $24-4=$
$8-8=$; $18-8=$; $28-8=$

(*b*)

$7-4=$; $17-4=$; $27-4=$
$9-6=$; $19-6=$; $29-6=$
$8-5=$; $18-5=$; $28-5=$
$5-3=$; $15-3=$; $25-3=$
$6-5=$; $16-5=$; $26-5=$

2. $17-10=$; $27-10=$
$19-10=$; $29-10=$
$13-10=$; $23-10=$
$18-10=$; $28-10=$
$15-10=$; $25-10=$

$7+?=15$; $17+?=25$
$9+?=13$; $19+?=23$
$?+4=12$; $?+14=22$
$3+?=12$; $13+?=22$
$6+?=13$; $16+?=23$

	(*a*)	(*b*)	(*c*)	(*d*)	(*e*)	(*f*)
3.	27	25	28	23	29	26
	−13	−12	−16	−13	−17	−14
4.	19	18	13	17	15	16
	−15	−12	−11	−13	−12	−14
5.	27	29	24	25	28	26
	−22	−23	−21	−24	−25	−22
6.	23	25	21	27	24	28
	− 4	− 6	− 7	− 8	− 5	− 9
7.	26	21	25	27	24	23
	− 7	− 3	− 8	− 9	− 6	− 7
8.	25	27	23	26	24	22
	−16	−18	−15	−17	−19	−13
9.	22	23	22	25	27	24
	−14	−16	−17	−18	−19	−16

Exercise 17

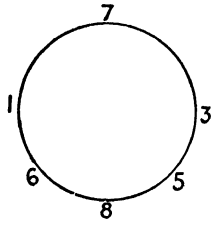
Number. Addition and Subtraction

ANSWERS

	(*a*)	(*b*)
1.	0; 10; 20	3; 13; 23
	0; 10; 20	3; 13; 23
	0; 10; 20	3; 13; 23
	0; 10; 20	2; 12; 22
	0; 10; 20	1; 11; 21
2.	7; 17	8; 8
	9; 19	4; 4
	3; 13	8; 8
	8; 18	9; 9
	5; 15	7; 7

	(*a*)	(*b*)	(*c*)	(*d*)	(*e*)	(*f*)
3.	14	13	12	10	12	12
4.	4	6	2	4	3	2
5.	5	6	3	1	3	4
6.	19	19	14	19	19	19
7.	19	18	17	18	18	16
8.	9	9	8	9	5	9
9.	8	7	5	7	8	8

RING EXERCISES



1. Adding round the ring, starting at any number, as: 3 and 5 = 8; 8 and 8 = 16; 16 and 6 are 22; 22 and 1 are 23; 23 and 7 are 30.
2. Multiplying each number by 2; then by 3; then by 4.
3. Multiplying each number by 3, and adding 2 to each answer, as: $3 \times 7 = 21$, and 2 make 23.

Magic Squares.

8	6	4
3	10	5
7	2	9

11	9	7
6	13	8
10	5	12

Add in columns and rows.

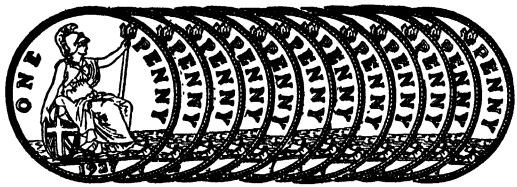
ORAL EXERCISES

1. 19 penny cakes. Cost? (1*s.* 7*d.*)
2. Spend 7*d.* out of 1*s.* Change? (5*d.*)
3. 5 toys at 4*d.* each (1*s.* 8*d.*)
4. Bat 6*d.*, wickets 5*d.*, and ball 3*d.* Total cost? (1*s.* 2*d.*)
5. 1 doll 8*d.* and 1 cradle 9*d.* Total cost (1*s.* 5*d.*)

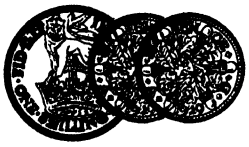
Exercise 18

Money to 2s.



1*s.* | 6*d.* + 6*d.* = 1*s.* | 3*d.* + 3*d.* + 3*d.* + 3*d.* = 1*s.* | 12*d.* = 1*s.*



1*s.* + 6*d.* + 6*d.* = 2*s.* | 1*s.* + 1*s.* = 2*s.* | 2*s.* *or* **1 florin**

	(*a*)		(*b*)			(*c*)	
	s. *d.*		*s.*	*d.*	*pence*		*s.* *d.*
1.	**17***d.* =		**1**	**5** =		**6***d.* + **7***d.* =	
	21*d.* =		**1**	**11** =		**10***d.* + **11***d.* =	
	19*d.* =		**1**	**3** =		**7***d.* + **9***d.* =	
	22*d.* =		**1**	**1** =		**3***d.* + **5***d.* + **10***d.* =	
	18*d.* =		**1**	**7** =		**5***d.* + **6***d.* + **11***d.* =	
	20*d.* =		**1**	**6** =		**4***d.* + **9***d.* + **8***d.* =	

2. **8***d.* × **2** = ; **7***d.* × **2** = ; **4***d.* × **6** = ; **8***d.* × **3** = ; **5***d.* × **4** =

$\frac{1}{2}d.$ + $\frac{1}{2}d.$ = 1*d.*

1*d.*

	s. *d.*	*s.* *d.*	*s.* *d.*	*s.* *d.*	*s.* *d.*	*s.* *d.*
3.	**1** **3**	**7**	**1** **4**	**1** **2**	**1** **11**	**11**
	+ **5**	+**1** **0**	+ **7**	+ **10**	+ **1**	+ **9**

	d.	*d.*	*d.*	*d.*	*s.* *d.*	*d.*
4.	$1\frac{1}{2}$	**3**	$2\frac{1}{2}$	$10\frac{1}{2}$	**1** $1\frac{1}{2}$	$3\frac{1}{2}$
	+ $\frac{1}{2}$	+ $\frac{1}{2}$	+$1\frac{1}{2}$	+ **2**	+ **4**	+$2\frac{1}{2}$

Exercise 18

Money to 2s.

ANSWERS

1. (*a*) 1*s.* 5*d.*; 1*s.* 9*d.*; 1*s.* 7*d.*; 1*s.* 10*d.*; 1*s.* 6*d.*; 1*s.* 8*d.*
   (*b*) 17*d.*; 23*d.*; 15*d.*; 13*d.*; 19*d.*; 18*d.*
   (*c*) 1*s.* 1*d.*; 1*s.* 9*d.*; 1*s.* 4*d.*; 1*s.* 6*d.*; 1*s.* 10*d.*; 1*s.* 9*d.*
2. 1*s.* 4*d.*; 1*s.* 2*d.*; 2*s.*; 2*s.*; 1*s.* 8*d.*
3. 1*s.* 8*d.*; 1*s.* 7*d.*; 1*s.* 11*d.*; 2*s.*; 2*s.*; 1*s.* 8*d.*
4. 2*d.*; 3½*d.*; 4*d.*; 1*s.* 0½*d.*; 1*s.* 5½*d.*; 6*d.*

A. PRACTICAL WORK

1. Money to 2 shillings. Use coins to show:

$$\left.\begin{array}{l} 18d. = 12d. + 6d. = 1s. 6d. \\ 19d. = 12d. + 7d. = 1s. 7d. \\ \vdots \quad\quad \vdots \quad\quad \vdots \\ 24d. = 12d. + 12d. = 2s. 0d. \end{array}\right\} \text{Revise and extend pence table to } 24d. = 2s.$$

2. Halfpence: $\frac{1}{2}d. + \frac{1}{2}d. = 1d.$; $\frac{1}{2}d. + \frac{1}{2}d. + \frac{1}{2}d. = 1\frac{1}{2}d.$; $\frac{1}{2}d. + \frac{1}{2}d. + \frac{1}{2}d. + \frac{1}{2}d. = 1d. + 1d. = 2d.$

B. ORAL EXERCISES

Miscellaneous.

1. 7 pairs of kippers. How many? (14)
2. 2 dozen and 6. How many? (30)
3. 1 dozen eggs at 2*d.* each? (2*s.*)
4. 6 rows of plants, 3 in a row. How many altogether? (18)
5. 30 pens given out; 27 collected. How many short? (3)

ADDITION OF MONEY

(See also page 23*a*)

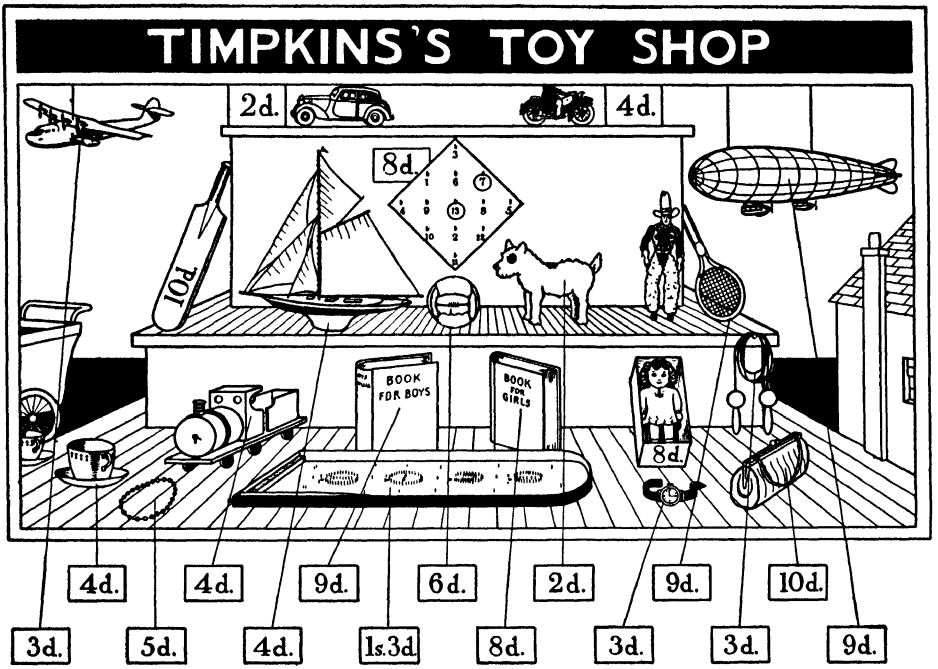
Introduce the difficulties one at a time, as:

(*a*) Adding pence to shillings, as: 1*s.* 0*d.* + 9*d.*, and vice versa, as: 9*d.* + 1*s.* 0*d.*
(*b*) Keeping within the shillings stated, as: 1*s.* 2*d.* + 9*d.*; 2*s.* 1*d.* + 7*d.*
(*c*) Completing the next shilling, as: 1*s.* 3*d.* + 9*d.*; 1*s.* 7*d.* + 5*d.*
(*d*) Bridging the shillings, as: 10*d.* + 10*d.*; 1*s.* 7*d.* + 9*d.*; 2*s.* 9*d.* + 4*d.* (See Ex. 23 and 23*a*.)

(Exercises should not pass beyond a total of 2*s.* at this stage. See pupil's page.)

Exercise 19

Shopping. The Toy Shop



What will be the cost of:

1. (*a*) **A ship and a ball?** (*b*) **A doll and a skipping rope?** (*c*) **A motor-car and a cricket bat?** (*d*) **The two games?**

2. (*a*) **An airship and an engine?** (*b*) **A cup and saucer and a necklace?** (*c*) **A hand-bag and a tennis bat?** (*d*) **3 dolls?**

3. (*a*) **An engine, an airship, and a ball?** (*b*) **3 cups and saucers and 2 balls?** (*c*) **2 books for girls and 2 skipping ropes?**

4. **How much more must we pay for:** (*a*) **An airship than a ball?** (*b*) **A tennis bat than a rope?** (*c*) **A cricket bat than a ship?** (*d*) **The game at 1*s.* 3*d.* than the game at 8*d.*?**

5. **How much change out of 2 shillings, if we buy:** (*a*) **A cricket bat and an airship?** (*b*) **A doll and 2 skipping ropes?** (*c*) **2 aeroplanes and 2 motor-cycles?** (*d*) **A hand-bag and a wrist-watch?**

Exercise 19

Shopping. The Toy Shop

ANSWERS

1. (*a*) 10*d.*; (*b*) 11*d.*; (*c*) 1*s.*; (*d*) 1*s.* 11*d.*
2. (*a*) 1*s.* 1*d.*; (*b*) 9*d.*; (*c*) 1*s.* 7*d.*; (*d*) 2*s.*
3. (*a*) 1*s.* 7*d.*; (*b*) 2*s.*; (*c*) 1*s.* 10*d.*
4. (*a*) 3*d.*; (*b*) 6*d.*; (*c*) 6*d.*; (*d*) 7*d.*
5. (*a*) 5*d.*; (*b*) 10*d.*; (*c*) 10*d.*; (*d*) 11*d.*

A. PRACTICAL WORK

Shopping Exercises. (See page 11*a*.)

Let each pupil be customer and shopkeeper in turn. This will give practice in both giving and receiving change.

B. PICTORIAL EXERCISES
(Based on the shop, pupil's page)

Addition, subtraction (giving change), and multiplication of money.

C. ORAL EXERCISES

Miscellaneous.

1. 3 toys at 6*d.* each (1*s.* 6*d.*); at 7*d.* each (1*s.* 9*d.*); at 5*d.* each (1*s.* 3*d.*)
2. Engine 1*s.* 3*d.*; carriage 9*d.* How much more for engine than carriage? (6*d.*)
3. How much for the engine and carriage together? (2*s.*)
4. Change out of 2*s.* after buying doll for 1*s.* 6*d.* (6*d.*); bat for 9*d.* (1*s.* 3*d.*)
5. How many legs have 4 cows and 2 hens? (20)
6. 9 cows in one field, 7 in another. How many in both fields? (16)
7. 2 dozen and 3. How many? (27)
8. How many wheels have 6 motor-cars? (24)

D. MECHANICAL DICTATED

1.	(*a*) 17 + 7	(*b*) 23 + 7	(*c*) 16 + 9	(*d*) 13 + 17
2.	(*a*) 20 − 7	(*b*) 20 − 17	(*c*) 30 − 9	(*d*) 30 − 19
3.	(*a*) 4 × 3	(*b*) 6 × 2	(*c*) 8 × 2	(*d*) 7 × 3
4.	(*a*) 1*s.* 2*d.* + 9*d.*	(*b*) 2*s.* − 1*s.* 4*d.*	(*c*) 8*d.* + 9*d.*	(*d*) 10*d.* + 7*d.*

Exercise 20

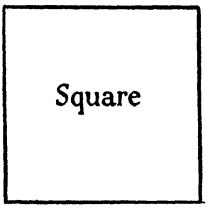
Measuring and Drawing. Inches

1. A ———————————————

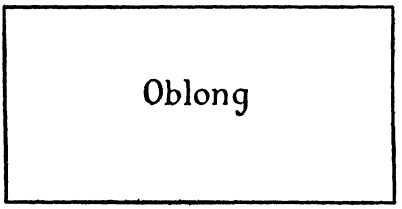
   B ——————

   C ————————————————

   A = ? inches; B = ? inches; C = ? inches.

2. 

   How long is the square?
   How wide is it?
   Are all its sides equal in length?
   How far is it all round?

3. 

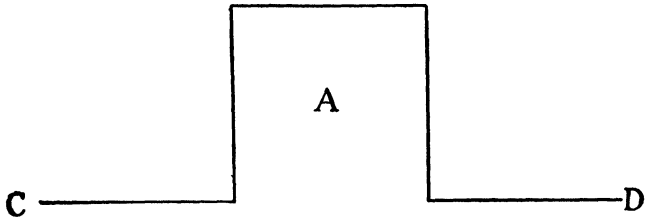
   How long is the oblong?
   How wide is it?
   How far is it all round?

4. Draw lines as long as B and C (No. 1) together; A and B (No. 1) together; A and C together.

5. Draw lines 2 inches long; 3 inches long; 1 inch long.

6. Draw a square, making the sides 2 inches long.

7. Draw an oblong, making the longer sides 3 inches long and the shorter sides 2 inches long.



8. Copy the drawing A. How far is it all round? How far is it across from C to D?

Exercise 20

Measuring and Drawing. Inches

Measuring and Drawing — inches only. The exercise on the pupil's page should be taken as an oral lesson.

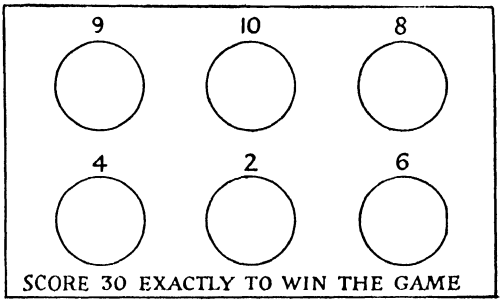
A. ORAL EXERCISES

Miscellaneous.

1. How many laces are wanted for (*a*) 5 pairs of shoes? (10); (*b*) 8 pairs? (16)
2. Buy a packet of matches for 10*d*. How much change out of a 1/-? (2*d*.)
3. 4 bars of soap at 6*d*. a bar. Cost? (2/-)
4. (*a*) 9*d*. for bacon and 7*d*. for eggs. Total cost? (1/4) (*b*) Change from a florin? (8*d*.)
5. (*a*) 7 balls at 3*d*. each. Cost? (1/9) (*b*) Change from a florin? (3*d*.)
6. 1 Savings Stamp (6*d*.) each week for 4 weeks. Value of stamps? (2*s*.)
7. 2 dozen and 4. How many? (28)
8. How many wheels altogether have 7 motor-cars? (28)
9. Arrange 28 boys in rows of 4. How many rows? (7)
10. 18 cows, 6 sheep, and 5 pigs. How many animals altogether? (29)

B. SCORING GAME

All that is needed for this game is a large sheet of plywood with large holes numbered as in the picture, and 4 bean bags. Stand 1 yard away and throw 4 bags.

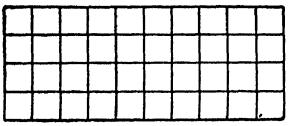


C. MECHANICAL DICTATED

1. (*a*) 9 + 8; (*b*) 19 + 8; (*c*) 23 + 7; (*d*) 30 − 12; (*e*) 27 − 15; (*f*) 22 − 19.
2. (*a*) 6 × 5; (*b*) 7 × 4; (*c*) 9 × 3; (*d*) 24 ÷ 4; (*e*) 18 ÷ 2; (*f*) 21 ÷ 3.

Exercise 21

Number to 40. Addition and Subtraction

1. 

How many squares are there in each row?
How many rows are there?
How many squares are there altogether?

$4 \times 10 =$; $10 \times 4 =$
$40 \div 10 =$; $40 \div 4 =$

2. Count from 0 to 40 by twos; then back again.

3. Count from 0 to 40 by tens. Then from 0 to 40 in fours.

	(*a*)	(*b*)	(*c*)	(*d*)	(*e*)	(*f*)
4.	30 + 5	30 + 6	7 + 30	30 + 9	30 + 1	4 + 30
5.	32 + 7	33 + 6	5 + 32	31 + 8	35 + 4	7 + 32
6.	23 + 15	21 + 17	18 + 21	24 + 13	22 + 16	17 + 22
7.	35 + 5	34 + 6	8 + 32	31 + 9	33 + 7	3 + 37
8.	28 + 7	26 + 9	25 + 8	7 + 26	29 + 8	9 + 27
9.	17 + 15	19 + 14	15 + 19	18 + 13	19 + 17	16 + 18
10.	33 − 21	37 − 14	38 − 26	33 − 2	39 − 14	36 − 22
11.	35 − 7	33 − 9	31 − 16	33 − 18	37 − 19	35 − 6
12.	34 − 27	38 − 29	35 − 26	37 − 28	31 − 22	40 − 35
13.	32 − 29	40 − 23	40 − 32	31 − 18	33 − 26	37 − 29

Exercise 21

Number to 40. Addition and Subtraction

ANSWERS

	(a)	(b)	(c)	(d)	(e)	(f)
4.	35	36	37	39	31	34
5.	39	39	37	39	39	39
6.	38	38	39	37	38	39
7.	40	40	40	40	40	40
8.	35	35	33	33	37	36

	(a)	(b)	(c)	(d)	(e)	(f)
9.	32	33	34	31	36	34
10.	12	23	12	31	25	14
11.	28	24	15	15	18	29
12.	7	9	9	9	9	5
13.	3	17	8	13	7	8

A. PRACTICAL WORK

1. Number to 40. (*a*) Practical Work: $30 + 1$; $30 + 2$; etc. (See teacher's page, 15*a*.)
   (*b*) What number comes (i) after 34? (35); (ii) before 34? (33) (See teacher's page, 15*a*.)
   (*c*) Show with your counters, 3 tens and 8. What is the number? Write it in figures. Repeat for other numbers.
2. Tables to 40. (See teacher's pages, 12*a* and 13*a*.)
   Extend tables (build up the additional items) to:

(*a*) Twos: $12 \times 2 = 24$; (*b*) Threes: $12 \times 3 = 36$; (*c*) Fours: $10 \times 4 = 40$; (*d*) Fives: $8 \times 5 = 40$; (*e*) Sixes: $6 \times 6 = 36$.

B. ADDITION AND SUBTRACTION

Graded exercises in both processes are to be found on the pupil's page. Should any step, in either addition or subtraction, cause difficulty with an individual or individuals, the individual (individuals) should receive special attention until the difficulty has been mastered. Should there be a class weakness at any step the teaching has been at fault.

C. ORAL EXERCISES

Miscellaneous.

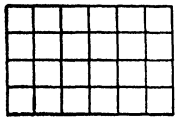
1. 23 pens at 1*d*. each (1*s*. 11*d*.)
2. How many 3*d*. balls for 1 shilling? (4)
3. Buy with a shilling, 3 threepenny balls. Change? (3*d*.)
4. A boy needs 10 inches of elastic for 1 garter. How many inches for a pair of garters? (20 inches)
5. 18 cows, 6 sheep, and 5 pigs. How many animals altogether? (29)

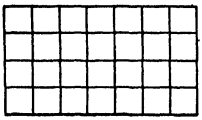
Exercise 22

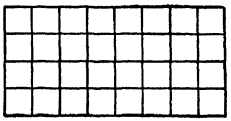
Number and Money

Multiplication and Division (Table Work)

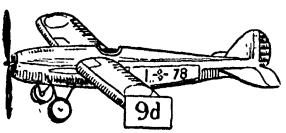
1.







$6 \times 4 =$	$7 \times 4 =$	$8 \times 4 =$
$4 \times 6 =$	$4 \times 7 =$	$4 \times 8 =$
$24 \div 4 =$	$28 \div 4 =$	$32 \div 4 =$
$24 \div 6 =$	$28 \div 7 =$	$32 \div 8 =$



2. Count by fours from 0 to 40; then back again.

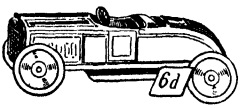
3. Count by fives from 0 to 40; then back again.

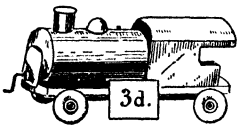
4.

$9 \times 4 =$	$10 \times 4 =$	$6 \times 5 =$	$7 \times 5 =$	$8 \times 5 =$
$4 \times 9 =$	$4 \times 10 =$	$5 \times 6 =$	$5 \times 7 =$	$5 \times 8 =$
$36 \div 4 =$	$40 \div 4 =$	$30 \div 5 =$	$35 \div 5 =$	$40 \div 5 =$
$36 \div 9 =$	$40 \div 10 =$	$30 \div 6 =$	$35 \div 7 =$	$40 \div 8 =$

5.

(*a*)	(*b*)	(*c*)	(*d*)
$6 \times 4 =$	$30 \div 5 =$	$4d. \times 3 =$	$2s.\ 0d. \div 4 =$
$7 \times 4 =$	$24 \div 4 =$	$6d. \times 2 =$	$1s.\ 4d. \div 4 =$
$8 \times 4 =$	$21 \div 3 =$	$8d. \times 3 =$	$2s.\ 0d. \div 6 =$
$5 \times 5 =$	$25 \div 5 =$	$5d. \times 3 =$	$2s.\ 0d. \div 3 =$
$6 \times 5 =$	$28 \div 4 =$	$10d. \times 2 =$	$1s.\ 8d. \div 2 =$
$4 \times 4 =$	$35 \div 5 =$	$7d. \times 3 =$	$1s.\ 3d. \div 5 =$
$7 \times 5 =$	$27 \div 3 =$	$9d. \times 2 =$	$1s.\ 9d. \div 3 =$
$9 \times 4 =$	$24 \div 6 =$	$4d. \times 5 =$	$1s.\ 6d. \div 3 =$
$8 \times 5 =$	$22 \div 2 =$	$7d. \times 2 =$	$1s.\ 10d. \div 2 =$
$4 \times 5 =$	$32 \div 4 =$	$6d. \times 3 =$	$1s.\ 8d. \div 5 =$



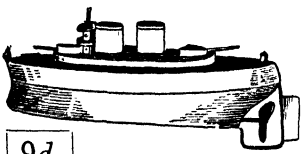


6.

31	40	40	33	36
-27	-25	-33	-19	-7

7.

18	34	39	34	35
-9	-24	-30	-19	-28



Exercise 22

Number and Money. Multiplication and Division (Table Work)

ANSWERS

5.

(*a*)	(*b*)	(*c*)	(*d*)
24	6	1*s.*	6*d.*
28	6	1*s.*	4*d.*
32	7	2*s.*	4*d.*
25	5	1*s.* 3*d.*	8*d.*
30	7	1*s.* 8*d.*	10*d.*
16	7	1*s.* 9*d.*	3*d.*
35	9	1*s.* 6*d.*	7*d.*
36	4	1*s.* 8*d.*	6*d.*
40	11	1*s.* 2*d.*	11*d.*
20	8	1*s.* 6*d.*	4*d.*

6. 4; 15; 7; 14; 29

7. 9; 10; 9; 15; 7

A. PRACTICAL WORK

Drawing squares to show table factors, as in 1, pupil's page. Show, by means of squares, that: $9 \times 4 = 4 \times 9$; $10 \times 4 = 4 \times 10$; $6 \times 5 = 5 \times 6$; $7 \times 5 = 5 \times 7$; etc.

Also, $9 \times 4 = 36$; $4 \times 9 = 36$; $36 \div 4 = 9$; $36 \div 9 = 4$; etc.; etc. (See No. 1, pupil's page, 21.) The work outlined above is most necessary if progress is to be made in multiplication and division.

B. PICTORIAL WORK
(Based on the pictures, pupil's page)

1. Which is the dearest toy? How much does it cost? (2*s.*)
2. Which is the cheapest toy? How much does it cost? (3*d.*)
3. How much more for the boat than the engine? (6*d.*)
4. Buy aeroplane, boat, and motor. Cost? (2*s.*)
5. Change out of 2*s.* after paying for motor and aeroplane? (9*d.*)
6. Cost of 2 aeroplanes? (1*s.* 6*d.*)
7. How much more for the teddy bear than for the aeroplane? (1*s.* 3*d.*)
8. Buy 3 motor-cars (1*s.* 6*d.*)

C. MECHANICAL DICTATED

1. (*a*) 27 + 13; (*b*) 25 + 8; (*c*) 24 + 16; (*d*) 12 + 16; (*e*) 17 + 18.
2. (*a*) 40 − 17; (*b*) 38 − 26; (*c*) 33 − 17; (*d*) 31 − 26; (*e*) 40 − 9.
3. (*a*) 1*s.* 0*d.* + 5*d.*; (*b*) 9*d.* + 1*s.* 0*d.*; (*c*) 1*s.* 3*d.* + 8*d.*; (*d*) 1*s.* 2*d.* + 9*d.*; (*e*) 1*s.* 2½*d.* + 3½*d.*

Exercise 23

Money to 3s.

1s. + 1s. + 6d. = 2s. 6d.

2s. + 6d. = 2s. 6d.

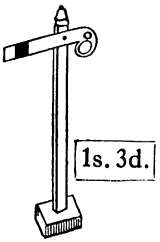
2s. 6d. **Half-crown**

1s. + 1s. + 1s. = 3s.

2s. 6d. + 6d. = 3s.

How many pence are there in?

1.	1s. 3d.	2s. 0d.	2s. 5d.	1s. 11d.	2s. 6d.
2.	1s. 9d.	3s. 0d.	2s. 9d.	1s. 8d.	2s. 3d.
3.	1s. 2d.	2s. 7d.	2s. 1d.	1s. 7d.	2s. 11d.

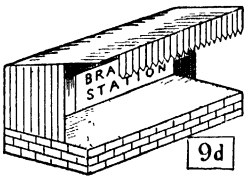


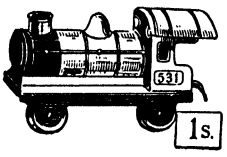
Change to shillings and pence:

4.	29d.	34d.	22d.	36d.	19d.
5.	28d.	31d.	17d.	25d.	33d.

6. (*a*) 1 florin (2s.) = ? sixpences = ? pence;
(*b*) 1 half-crown = ? sixpences = ? pence.

7.	s. d.	s. d.	s. d.	s. d.	s. d.
	2 3	2 1	2 6	2 8	1 7
	+ 6	+ 9	+ 5	+ 4	+ 5
8.	s. d.	s. d.	s. d.	s. d.	s. d.
	6	1 9	1 10	1 3	1 4
	+ 11	+ 9	+ 6	+ 1 6	+ 1 8
9.	d.	d.	d.	d.	d.
	$2\frac{1}{2}$	$3\frac{1}{2}$	8	$4\frac{1}{2}$	$3\frac{1}{2}$
	$+2\frac{1}{2}$	$+7$	$+3\frac{1}{2}$	$+5\frac{1}{2}$	$+7\frac{1}{2}$
10.	s. d.	s. d.	s. d.	s. d.	s. d.
	2 8	2 11	2 7	2 9	2 11
	− 6	− 10	− 5	− 1	− 7





Exercise 23
Money to 3s.

ANSWERS

1. 15*d.*; 24*d.*; 29*d.*; 23*d.*; 30*d.*
2. 21*d.*; 36*d.*; 33*d.*; 20*d.*; 27*d.*
3. 14*d.*; 31*d.*; 25*d.*; 19*d.*; 35*d.*
4. 2*s.* 5*d.*; 2*s.* 10*d.*; 1*s.* 10*d.*; 3*s.*; 1*s.* 7*d.*
5. 2*s.* 4*d.*; 2*s.* 7*d.*; 1*s.* 5*d.*; 2*s.* 1*d.*; 2*s.* 9*d.*
6. (*a*) 4; 24. (*b*) 5; 30
7. 2*s.* 9*d.*; 2*s.* 10*d.*; 2*s.* 11*d.*; 3*s.* 0*d.*; 2*s.* 0*d.*
8. 1*s.* 5*d.*; 2*s.* 6*d.*; 2*s.* 4*d.*; 2*s.* 9*d.*; 3*s.* 0*d.*
9. 5*d.*; 10½*d.*; 11½*d.*; 10*d.*; 11*d.*
10. 2*s.* 2*d.*; 2*s.* 1*d.*; 2*s.* 2*d.*; 2*s.* 8*d.*; 2*s.* 4*d.*

A. PRACTICAL WORK

1. Money to 3 shillings. Use coins to show:

$25d. = 12d. + 12d. + 1d. = 2s.\ 1d.$
$26d. = 12d. + 12d. + 2d. = 2s.\ 2d.$
⋮ ⋮ ⋮
$36d. = 12d. + 12d. + 12d. = 3s.$

Revise and extend pence table to $36d. = 3s.$

2. Halfpence: $\frac{1}{2}d. + \frac{1}{2}d. + \frac{1}{2}d. = 1d. + \frac{1}{2}d. = 1\frac{1}{2}d.$; etc. . . . to 12 halfpence = $1d. + 1d. + 1d. + 1d. + 1d. + 1d. = 6d.$
3. Relative values of coins, to 3 shillings.

B. ADDITION OF MONEY

(See page 18*a*)

Bridging the Shilling.

Example 1*s.* 9*d.* + 8*d.*

Practical work and blackboard work to go hand in hand.

shillings	pence	*s.*	*d.*
o	oooooooo	1	9
+	ooooooo	+	8
		2	5

shillings	pence
o	oooooooooooo ooooo

Regroup the money as:

shillings	pence
o o	ooooo

C. SUBTRACTION OF MONEY

Graded Exercises.

(Practical and Blackboard Work)

1. Keeping within the shillings stated, as: 2*s.* 8*d.* — 6*d.*; etc.
2. Shillings only in the answer, as: 3*s.* — 2*s.*; 2*s.* — 1*s.*; etc.; 3*s.* 6*d.* — 1*s.* 6*d.*
3. Taking pence from complete shillings, as: 3*s.* 0*d.* — 8*d.*; etc.
4. Bridging the shilling, as 2*s.* 3*d.* — 1*s.* 6*d.*; 2*s.* 5*d.* — 1*s.* 9*d.*; etc. (See page 29*a*.)

D. COUNTING

(*a*) By *threes* to 36; by threepences to 3 shillings.
(*b*) By *sixes* to 36; by sixpences to 3 shillings.

E. PICTORIAL WORK

(Based on the pictures, pupil's page)

Shopping sums involving addition and subtraction of money.

Exercise 24

Tests

A

1. 23 + 17; 24 + 9
2. 30 − 18; 37 − 28
3. 6 × 5; 9 × 4
4. 36 ÷ 6; 35 ÷ 5
5. 33*d.* = ; 2*s.* 3*d.* ÷ 3
6. 1*s.* 9*d.*+1*s.* 3*d.*; 1*s.* 9*d.*+10*d.*
7. 3*s.* 0*d.*−2*s.* 6*d.*; 2*s.* 3*d.*−9*d.*

B

18 + 22; 27 + 6
40 − 23; 35 − 26
6 × 4; 8 × 5
32 ÷ 4; 30 ÷ 5
31*d.* = ; 2*s.* 4*d.* ÷ 4
1*s.* 7*d.*+1*s.* 5*d.*; 1*s.* 7*d.*+8*d.*
3*s.* 0*d.*−2*s.* 3*d.*; 2*s.* 5*d.*−8*d.*

C

1. 21 + 19; 23 + 8
2. 40 − 16; 33 − 24
3. 9 × 3; 5 × 5
4. 25 ÷ 5; 27 ÷ 3
5. 35*d.* = ; 2*s.* 1*d.* ÷ 5
6. 1*s.* 2*d.*+1*s.* 10*d.*; 1*s.* 4*d.*+9*d.*
7. 3*s.* 0*d.*−2*s.* 2*d.*; 2*s.* 7*d.*−9*d.*

D

25 + 15; 28 + 9
40 − 21; 34 − 9
5 × 4; 7 × 5
28 ÷ 4; 20 ÷ 5
32*d.* = ; 2*s.* 8*d.* ÷ 4
1*s.* 6*d.*+1*s.* 6*d.*; 1*s.* 8*d.*+7*d.*
3*s.* 0*d.*−2*s.* 7*d.*; 2*s.* 8*d.*−10*d.*

E

1. 16 + 24; 7 + 24
2. 30 − 19; 31 − 23
3. 4 × 4; 8 × 4
4. 18 ÷ 6; 16 ÷ 2
5. 27*d.* = ; 2*s.* 6*d.* ÷ 6
6. 1*s.* 4*d.*+1*s.* 8*d.*; 1*s.* 5*d.*+8*d.*
7. 3*s.* 0*d.*−2*s.* 9*d.*; 2*s.* 4*d.*−7*d.*

F

17 + 23; 29 + 6
40 − 25; 32 − 17
6 × 6; 7 × 3
16 ÷ 4; 18 ÷ 3
34*d.* = ; 3*s.* 0*d.* ÷ 6
1*s.* 11*d.*+1*s.* 1*d.*; 1*s.* 6*d.*+9*d.*
3*s.* 0*d.*−2*s.* 1*d.*; 2*s.* 6*d.*−9*d.*

Exercise 24

Tests

ANSWERS

	A	B	C
1.	40; 33	40; 33	40; 31
2.	12; 9	17; 9	24; 9
3.	30; 36	24; 40	27; 25
4.	6; 7	8; 6	5; 9
5.	2*s.* 9*d.*; 9*d.*	2*s.* 7*d.*; 7*d.*	2*s.* 11*d.*; 5*d.*
6.	3*s.*; 2*s.* 7*d.*	3*s.*; 2*s.* 3*d.*	3*s.*; 2*s.* 1*d.*
7.	6*d.*; 1*s.* 6*d.*	9*d.*; 1*s.* 9*d.*	10*d.*; 1*s.* 10*d.*

	D	E	F
1.	40; 37	40; 31	40; 35
2.	19; 25	11; 8	15; 15
3.	20; 35	16; 32	36; 21
4.	7; 4	3; 8	4; 6
5.	2*s.* 8*d.*; 8*d.*	2*s.* 3*d.*; 5*d.*	2*s.* 10*d.*; 6*d.*
6.	3*s.*; 2*s.* 3*d.*	3*s.*; 2*s.* 1*d.*	3*s.*; 2*s.* 3*d.*
7.	5*d.*; 1*s.* 10*d.*	3*d.*; 1*s.* 9*d.*	11*d.*; 1*s.* 9*d.*

TEST IN WORD SUMS

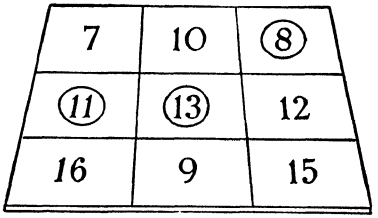
Written answers required to dictated questions.

1. 2 dozen and 10 more. How many altogether? (34)
2. 7 balls at 4*d.* each. Cost? (2*s.* 4*d.*)
3. Spend 2*s.* 1*d.* out of half a crown. How much left? (5*d.*)
4. 28 children are placed in 4 equal rows. How many in a row? (7)
5. 7 men, 8 women, and 10 children. How many altogether? (25)
6. A boy has 23 marbles. How many more does he need to make 40? (17)
7. 3 pairs of gloves have 2 buttons on each glove. How many buttons altogether? (12)
8. Buy 3 sixpenny balls with a florin. How much change? (6*d.*)
9. John saves 5*d.* a week for 5 weeks. How much has he saved? (2*s.* 1*d.*)
10. How many short of 31 is 17? (14)

Exercise 25

Number. Scoring Game

HOOP LA!



3 Rings a Try

		(a)	(b)	(c)	(d)	(e)
1. Score:	First ring	7	13	10	0	8
	Second ring	11	9	13	16	12
	Third ring	16	12	16	16	15
	Totals	—	—	—	—	—

		Reds Team		*Blues Team*	
2. Score:	First boy	7 + 0 + 9 =		7 + 7 + 0 =	
	Second boy	0 + 8 + 7 =		8 + 0 + 9 =	
	Third boy	9 + 0 + 0 =	—	7 + 0 + 0 =	—
		Total	—	Total	—

3. Which team wins — Reds or Blues? By how many?

4. Score 13, three times. How many have you scored altogether?

5. Score: 11, 13, 12. How many is your total short of 40?

	First Ring	*Second Ring*	*Third Ring*	*Total*
6. Score	16	13	?	= 39
7. Score	16	15	?	= 40
8. Score	9	8	?	= 33
9. Score	13	9	?	= 32
10. Score	8	12	?	= 35

Exercise 25

Number. Scoring Game

ANSWERS

1. (*a*) 34; (*b*) 34; (*c*) 39; (*d*) 32; (*e*) 35
2. Reds, 40; Blues, 38
3. Reds, by 2
4. 39
5. 4
6. 10
7. 9
8. 16
9. 10
10. 15

SCORING GAME

(See pupil's page)

For this game the teacher's table might be used. Mark it out as shown in the picture. Use rubber rings or cardboard discs (tops of milk bottles) for throwing. Let the boys play in turn, each boy totalling up his score.

Team games can be played at this stage, if smaller numbers are used.

Exercises on the Game. (See pupil's page.)

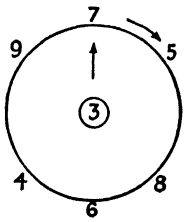
1. How many have been scored? (32)
2. Score 3 nines. How many? (27)
3. What is the smallest number that can be scored with the 3 rings on different numbers? (24)
4. Score 7, 10, and 12. How many? (29)

ORAL EXERCISES

Miscellaneous.

1. How many must we add to 30 to make 40? (10)
2. A boy is 3 years of age. How many months has he lived? (36)
3. 1*s.* 9*d.* and 9*d.* more. How much altogether? (2*s.* 6*d.*)
4. From 35 take 16 (19).
5. ½*d.* a day for milk. How much for a school week of 5 days? (2½*d.*)

FURTHER HINTS



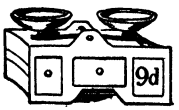
Ring Work.— 3 times table calling the result each time, pence, and changing to shillings and pence, e.g.

$7 \times 3 = 21$; $21d. = 1s.\ 9d.$; etc., etc.

Exercise 26

Number to 50

1. Look at the picture squares at the top of page 21. Then draw or cut out 5 rows of squares with 10 squares in each row. How many squares altogether?
2. 4 tens and 1 ten make 5 tens or 50.
   3 tens and 2 tens make ?; 1 ten + 2 tens + 2 tens = ?
   5 tens − 3 tens = ?; 5 tens − 4 tens = ?
   5 tens − 2 tens = ?; 5 tens − 1 ten = ?
3. Count the squares in your picture, as: 1, 2, 3, 4, . . . In square 23, write 23. Then write the following numbers, each one in its right square: 15, 29, 37, 46.
4. Write each of the following numbers in its right square: seventeen, twenty-five, thirty-two, forty-four, and fifty.
5. (*a*) Count from 0 to 50 by tens; then back again. (*b*) Count from 0 to 50 by fives; then back again.
6. Count by tens from 1 to 41, as: 1, 11, . . . Then count by tens (*a*) from 22 to 42; (*b*) 23 to 43; (*c*) 24 to 44; and so on to 29, 39, 49.
7. (*a*) 20 + 10 + 20 = ; (*b*) 10 + 20 + 10 = ;
   (*c*) 30 + 10 + 9 + 1 = ?



	(*a*)	(*b*)	(*c*)	(*d*)
8.	46 + 4	37 + 8	35 +14	25 +17
9.	10 +15 +25	6 + 8 +24	15 +18 +14	17 +18 + 9
10.	46 −24	50 − 4	50 −14	50 −24
11.	50 −34	50 −44	43 − 9	45 −18
12.	47 −28	46 −39	43 −26	44 −27
13.	49 −46	50 −27	41 −39	45 −35

Exercise 26

Number to 50

ANSWERS

	(*a*)	(*b*)	(*c*)	(*d*)		(*a*)	(*b*)	(*c*)	(*d*)
8.	50	45	49	42	11.	16	6	34	27
9.	50	38	47	44	12.	19	7	17	17
10.	22	46	36	26	13.	3	23	2	10

A. PRACTICAL WORK

1. Number and Notation to 50. See teacher's page, 21*a*, Nos. 1*a*, 1*b*, 1*c*. (Practical.)
2. Tables to 50. See teacher's pages, 12*a*, 13*a*, and 21*a*. (Practical.)
3. Diagrammatic work to show $9 \times 5 = 5 \times 9$; $10 \times 5 = 5 \times 10$; $7 \times 6 = 6 \times 7$; $8 \times 6 = 6 \times 8$.
4. Diagrammatic work: $9 \times 5 = 45$; $5 \times 9 = 45$; $45 \div 5 = 9$; $45 \div 9 = 5$; etc. (See No. 1, pupil's page, 21.)

B. PICTORIAL WORK

(Based on the pictures, pupil's page)

1. How much for the beads and ball together? ($11\frac{1}{2}d.$)
2. How much for the bear, scales, and ball together? (2*s.* 8*d.*)
3. How much for the bear, scales, and beads together? (2*s.* $3\frac{1}{2}d.$)
4. How much more for the bear than the scales? (6*d.*)
5. How much more for the ball than the beads? ($4\frac{1}{2}d.$)
6. How much for 2 strings of beads? (7*d.*); 3 strings? ($10\frac{1}{2}d.$)
7. How much for 3 sets of scales? (2*s.* 3*d.*)
8. How much change out of a shilling after paying for (*a*) the ball? (4*d.*); (*b*) the beads? ($8\frac{1}{2}d.$)
9. How much change from (*a*) a half-crown; (*b*) a florin, after paying for the scales and bear? (*a*, 6*d.*; *b*, no change.)

C. MECHANICAL DICTATED

	(*a*)	(*b*)	(*c*)	(*d*)
1.	$17 + 9$	$23 - 8$	9×3	$35 \div 5$
2.	$6d. \times 5$	$7d. \times 4$	$1s.\ 4d. \div 4$	$1s.\ 8d. \div 5$

D. CONTINUOUS SUBTRACTION FROM A GIVEN NUMBER

From 40 subtract 6 as many times as possible, as $40 - 6 = (34)$; $34 - 6\ (28)$; etc.
From 39 subtract 7 as many times as possible, as $39 - 7\ (32)$; $32 - 7$; etc.

Exercise 27
Number and Money
Counting; Multiplication and Division (Table Work)

1. Count by threes from 3 to 36; then back again. Say 3 + 3 + 3 + 3 another way.
2. Count by fours from 4 to 48; then back again. Say 4 + 4 + 4 + 4 + 4 another way.
3. Count by fives from 5 to 50; then back again. Say 5 + 5 + 5 + 5 + 5 + 5 another way.
4. Count by sixes from 6 to 48; then back again. Say 6 + 6 + 6 + 6 + 6 + 6 another way.

	(*a*)	(*b*)	(*c*)	(*d*)
5.	$4 \times 3 =$	$8 \times 4 =$	$6 \times 5 =$	$7 \times 6 =$
	$7 \times 3 =$	$5 \times 4 =$	$4 \times 5 =$	$8 \times 6 =$
	$9 \times 3 =$	$7 \times 4 =$	$7 \times 5 =$	$4 \times 6 =$
	$5 \times 3 =$	$9 \times 4 =$	$9 \times 5 =$	$3 \times 6 =$
	$8 \times 3 =$	$4 \times 4 =$	$5 \times 5 =$	$5 \times 6 =$
	s. d.	*s. d.*	*s. d.*	*s. d.*
6.	$3d. \times 3 =$	$3d. \times 4 =$	$5d. \times 5 =$	$4d. \times 6 =$
	$6d. \times 3 =$	$9d. \times 4 =$	$3d. \times 5 =$	$2d. \times 6 =$
	$10d. \times 3 =$	$6d. \times 4 =$	$7d. \times 5 =$	$5d. \times 6 =$
	$12d. \times 3 =$	$4d. \times 4 =$	$4d. \times 5 =$	$3d. \times 6 =$
	$11d. \times 3 =$	$8d. \times 4 =$	$6d. \times 5 =$	$6d. \times 6 =$
7.	$33 \div 3 =$	$48 \div 4 =$	$50 \div 5 =$	$48 \div 6 =$
	$27 \div 3 =$	$16 \div 4 =$	$40 \div 5 =$	$30 \div 6 =$
	$21 \div 3 =$	$24 \div 4 =$	$45 \div 5 =$	$42 \div 6 =$
	$30 \div 3 =$	$40 \div 4 =$	$35 \div 5 =$	$24 \div 6 =$
	$36 \div 3 =$	$32 \div 4 =$	$30 \div 5 =$	$18 \div 6 =$
	s. d. *d.*	*s. d.* *d.*	*s. d.* *d.*	*s. d.* *d.*
8.	1 0 $\div 3 =$	1 4 $\div 4 =$	2 11 $\div 5 =$	3 0 $\div 6 =$
	1 6 $\div 3 =$	2 8 $\div 4 =$	1 8 $\div 5 =$	1 6 $\div 6 =$
	2 0 $\div 3 =$	1 8 $\div 4 =$	1 3 $\div 5 =$	2 0 $\div 6 =$
	1 9 $\div 3 =$	2 4 $\div 4 =$	2 6 $\div 5 =$	1 0 $\div 6 =$
	2 3 $\div 3 =$	2 0 $\div 4 =$	2 1 $\div 5 =$	2 6 $\div 6 =$

Exercise 27

Number and Money. Counting; Multiplication and Division (Table Work)

ANSWERS

5.

(a)	(b)	(c)	(d)
12	32	30	42
21	20	20	48
27	28	35	24
15	36	45	18
24	16	25	30

7.

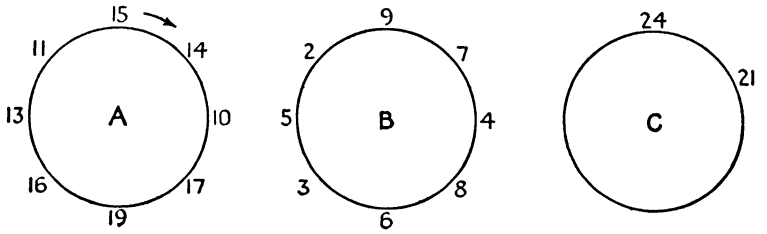
(a)	(b)	(c)	(d)
11	12	10	8
9	4	8	5
7	6	9	7
10	10	7	4
12	8	6	3

6.

s. *d.*	*s.* *d.*	*s.* *d.*	*s.* *d.*
9	1 0	2 1	2 0
1 6	3 0	1 3	1 0
2 6	2 0	2 11	2 6
3 0	1 4	1 8	1 6
2 9	2 8	2 6	3 0

8.

pence	*pence*	*pence*	*pence*
4	4	7	6
6	8	4	3
8	5	3	4
7	7	6	2
9	6	5	5



A. RING WORK

1. To each number round ring A, add in turn, 3, 4, 5, 6, 7, 8, and 9, as: $15 + 3 = ?$; $15 + 4 = ?$; etc. $14 + 3 = ?$; $14 + 4 = ?$; etc.
2. Multiply each number round ring B by 3, 4, 5, and 6 in turn, as: $9 \times 3 = ?$; $9 \times 4 = ?$; etc. $7 \times 3 = ?$; $7 \times 4 = ?$; etc.
3. Add corresponding numbers in A and B to form ring C. Two have been done for you, as: $15 + 9 = ?$; $14 + 7 = ?$
4. Call the numbers round ring C, pence, as: 24*d.* Then change each to shillings and pence, as: 24*d.* = 2*s.* 0*d.*

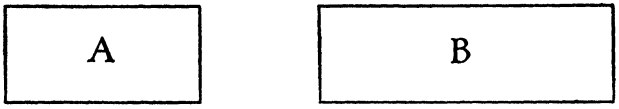
B. REVISION OF TABLES

Exercise 28

Measuring and Drawing. Half-inches

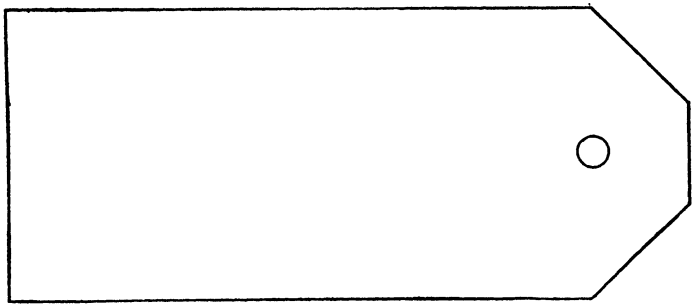
A——————————B

1. First measure; then draw the line AB. Next find the middle and put a dot. How long is each part? 1 inch + 1 inch =
2. Draw a line 1 inch long. Find the middle. How long is each part? $\frac{1}{2}$ inch + $\frac{1}{2}$ inch =
3. Draw a line 3 inches long and find the middle. How long is each part? $1\frac{1}{2}$ inches + $1\frac{1}{2}$ inches =
4. Draw the following lines: (*a*) $1\frac{1}{2}$ inches; (*b*) $2\frac{1}{2}$ inches; (*c*) $3\frac{1}{2}$ inches.
5. Copy the oblongs:



How far is it round A? How far is it round B? How much farther is it round B than round A?

6. How far is it half-way round A?; half-way round B?
7. Draw a square, making each side half an inch long. How far is it all round?
8. Copy on cardboard, and cut out, the tie-on label.



9. Which two edges of the label are equal? Guess and then measure.
10. (*a*) Cover up 3 inches on your ruler. How many inches are left? (*b*) Cover up 5 inches. How many left?
11. Draw a line $1\frac{1}{2}$ times as long as a line 3 inches long.

Exercise 28

Measuring and Drawing. Half-inches

MEASURING AND DRAWING

Examination of a ruler — inches and half-inches.

Exercises.

1. Point out on your ruler: 1 inch; $1\frac{1}{2}$ inches; 2 inches; $2\frac{1}{2}$ inches; etc.

   Supply each child with a bundle of 12 cardboard strips measuring 1 inch, 2 in. . . . 12 in. respectively.

2. Pick out the 4-inch strip, the 6-inch strip, etc. Each strip picked out should be tested by means of the ruler.

3. Which 2 strips placed end to end measure 12 inches? (2 + 10; 3 + 9; etc., etc.)

   Learn: 12 inches = 1 foot.

   Supply each child with a bundle of strips measuring $1\frac{1}{2}$ in., $2\frac{1}{2}$ in., . . . $11\frac{1}{2}$ in. respectively.

4. Repeat exercise 2, as: Pick out the $3\frac{1}{2}$-inch strip. Test with your ruler.

5. Measuring articles to nearest half-inch. Judging followed by testing, as: About how long is your reading book, your pen, etc.?

6. Drawing lines to dictation, as: $2\frac{1}{2}$ inches; $5\frac{1}{2}$ inches; etc.

Further Exercises. (Class Lesson.)

Work by means of the ruler:

1. $1\frac{1}{2} + 1$; $2\frac{1}{2} + 3\frac{1}{2}$; $2 - 1\frac{1}{2}$; $\frac{1}{2} \times 3$.
2. $2\frac{1}{2} + 2$; $3\frac{1}{2} + 4\frac{1}{2}$; $3 - 1\frac{1}{2}$; $1\frac{1}{2} \times 2$.
   etc. etc.

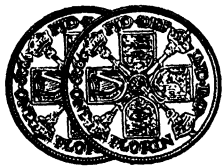
Another way of writing $18 \div 2$ is $\frac{18}{2}$; $18 \div 2 = 9$; $\frac{18}{2} = 9$; $\frac{1}{2}$ **of 18 = 9.**

3. Find: (*a*) $14 \div 2$; $\frac{14}{2}$; $\frac{1}{2}$ of 14;
   (*b*) $12 \div 2$; $\frac{12}{2}$; $\frac{1}{2}$ of 12.
4. Oral work: Find $\frac{1}{2}$ of these numbers: 4, 16, 12, 8, etc. (Not beyond $2 \times 12 = 24$.)
5. Oral work: Find $\frac{1}{2}$ of: 8*d*., 1*s*., 1*s*. 2*d*., etc. (Not beyond 2 shillings.)

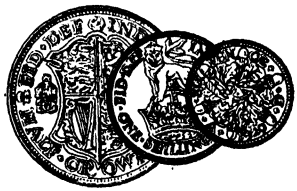
Exercise 29

Money to 4s. Addition and Subtraction

$1s. + 1s. + 1s. + 1s. = 4s.$



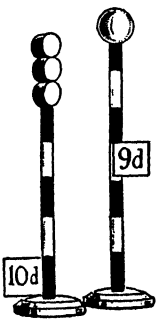
$2s. + 2s. = 4s.$



$2s.\ 6d. + 1s. + 6d. = 4s.$

1. How many pennies in 6 halfpennies? in 10 halfpennies?
2. How many pennies in 9 halfpennies? in 7 halfpennies?
3. How many halfpennies in $3\frac{1}{2}d.$? in $7\frac{1}{2}d.$? in $2\frac{1}{2}d.$? in $4\frac{1}{2}d.$?

	(*a*)	(*b*)	(*c*)	(*d*)
4.	*s.* *d.* $8\frac{1}{2}$ $+ \quad 3\frac{1}{2}$	*s.* *d.* $6\frac{1}{2}$ $+ \quad 5\frac{1}{2}$	*s.* *d.* $7\frac{1}{2}$ $+ \quad 4\frac{1}{2}$	*s.* *d.* $9\frac{1}{2}$ $+ \quad 2\frac{1}{2}$
5.	*d.* $3\frac{1}{2}$ $1\frac{1}{2}$ $+ \quad 4\frac{1}{2}$	*d.* $5\frac{1}{2}$ $+ \quad 2\frac{1}{2}$ $+ \quad 1\frac{1}{2}$	*s.* *d.* $4\frac{1}{2}$ $+ \quad 10\frac{1}{2}$ $+ \quad 7$	*s.* *d.* $3\frac{1}{2}$ $+ \quad 8\frac{1}{2}$ $+ \quad 9\frac{1}{2}$
6.	*s.* *d.* 1 11 $+1$ 10	*s.* *d.* 1 10 $+1$ 10	*s.* *d.* 1 8 $+1$ 11	*s.* *d.* 1 11 $+1$ 5



7. How much change from 6*d.*, if I spend: 4*d.*; 5*d.*; 2*d.*; $5\frac{1}{2}d.$; $4\frac{1}{2}d.$; $3\frac{1}{2}d.$; $2\frac{1}{2}d.$?
8. How much change from 1*s.*, if I spend: 7*d.*; 9*d.*; 11*d.*; $11\frac{1}{2}d.$; $10\frac{1}{2}d.$; $9\frac{1}{2}d.$; $3\frac{1}{2}d.$?
9. How much change from half a crown after spending: 2*s.* 1*d.*; 2*s.* 5*d.*; 2*s.* $3\frac{1}{2}d.$?
10. How much change from a florin after spending: 1*s.* 6*d.*; 1*s.* 5*d.*; 1*s.* 9*d.*; 1*s.* $11\frac{1}{2}d.$?

Exercise 29

Money to 4s. Addition and Subtraction

ANSWERS

1. Pennies: 3; 5. 2. $4\frac{1}{2}d.$; $3\frac{1}{2}d.$ 3. 7; 15; 5; 9.

	(*a*)	(*b*)	(*c*)	(*d*)
	s. *d.*	*s.* *d.*	*s.* *d.*	*s.* *d.*
4.	1 0	1 0	1 0	1 0
6.	3 9	3 8	3 7	3 4

	(*a*)	(*b*)	(*c*)	(*d*)
	s. *d.*	*s.* *d.*	*s.* *d.*	*s.* *d.*
5.	$9\frac{1}{2}$	$9\frac{1}{2}$	1 10	1 $9\frac{1}{2}$

7. $2d.$, $1d.$, $4d.$, $\frac{1}{2}d.$, $1\frac{1}{2}d.$, $2\frac{1}{2}d.$, $3\frac{1}{2}d.$ 8. $5d.$, $3d.$, $1d.$, $\frac{1}{2}d.$, $1\frac{1}{2}d.$, $2\frac{1}{2}d.$, $8\frac{1}{2}d.$

9. (*a*) $5d.$; (*b*) $1d.$; (*c*) $2\frac{1}{2}d.$ 10. (*a*) $6d.$; (*b*) $7d.$; (*c*) $3d.$; (*d*) $\frac{1}{2}d.$

A. PRACTICAL WORK

1. Money to 4 shillings. See teacher's page, 23*a*, for method. Learn the pence table thoroughly to $48d. = 4s.$
2. Relative values of coins, to 4 shillings.
3. Shopping sums involving the use of halfpennies. Set up a shop. (See teacher's page, 11*a*.)

Prepare slips of paper to represent "shopping messages" prepared by mother for John to take to the shop. State the amount sent with the message.

Buy with 2/6	
1 tin cocoa	$9d.$
1 bar soap	$6d.$
1 loaf	$4\frac{1}{2}d.$
Total	
Change?	

As a pupil is requested to "shop", supply him with a prepared slip, ask him to read it and find the coin (amount) stated at the top; then tell him to buy and receive the goods and see that he gets the correct change.

B. PICTORIAL WORK

(Based on the pictures, pupil's page)

Money — addition, subtraction (and change) and multiplication within the limits stated. (Money to 4*s*.)

C. SUBTRACTION OF MONEY

(Bridging the shillings)

Practical work and blackboard work should go hand in hand.

Example: $3s. 3d. - 9d.$

Practical Work.

(*a*) *ddddddddd* (9*d*.) and *dddddd* (6*d*.) make | *s* 1*s*. | and *ddd* (3*d*.).

(Rearrange money to show this.)

(*b*) *s* (1*s*.) and *ss* (2*s*.) make *sss* (3*s*.).

Note: The amounts underlined are written down.

Blackboard Work

s.	*d.*
3	3
–	9
2*s.*	6*d.*

(Graded exercises, subtraction of money, are to be found on page 30.)

Exercise 30

Money. Subtraction and Shopping

	(*a*)	(*b*)	(*c*)	(*d*)	(*e*)
	s. *d.*	*s.* *d.*	*s.* *d.*	*s.* *d.*	*s.* *d.*
1.	3 10	3 11	2 9	3 11	2 7
	− 7	− 4	− 3	− 10	− 6
2.	3 8	3 10	3 4	3 6	4 0
	−1 8	−2 10	− 4	−1 6	−2 0
3.	4 0	4 0	3 0	2 0	3 0
	− 8	− 9	− 6	− 11	− 5
4.	4 0	3 0	4 0	4 0	4 0
	−1 3	−1 6	−1 9	−2 10	−2 7
5.	3 1	3 3	3 7	3 5	3 3
	−1 2	−1 4	−1 8	−2 7	−1 9
6.	4 0	3 11	3 9	3 9	3 7
	−2 9	−1 11	−1 10	− 11	−2 8
7.	3 5	2 6	4 0	3 8	3 2
	−1 10	−1 9	−1 11	−1 5	−1 11
8.	2 3	3 7	3 6	4 0	3 7
	− 9	− 10	−1 5	−2 1	−2 11

9. (*a*) Buy 2 toys at 11*d.* each. (*b*) Change from half a crown.
10. (*a*) Buy 1 dozen eggs at 2*d.* each. (*b*) Change from half a crown.
11. (*a*) Buy 4 pencils at $2\frac{1}{2}d.$ each. (*b*) Change from 2*s.*
12. (*a*) Buy 3 books at 7*d.* each. (*b*) Change from 2*s.* 6*d.*
13. (*a*) Buy 5 pens at $1\frac{1}{2}d.$ each. (*b*) Change from 1*s.*
14. (*a*) Buy 1 rabbit at 2*s.* 3*d.* (*b*) Change from 4*s.*
15. (*a*) Buy 1 pair of slippers at 1*s.* $11\frac{1}{2}d.$ (*b*) Change from a florin.
16. (*a*) Buy 3 toys at 9*d.* each. (*b*) Change from 3*s.*

Exercise 30

Money. Subtraction and Shopping

ANSWERS

	(a)		(b)		(c)		(d)		(e)	
	s.	*d.*	*s.*	*d.*	*s.*	*d.*	*s.*	*d.*	*s.*	*d.*
1.	3	3	3	7	2	6	3	1	2	1
2.	2	0	1	0	3	0	2	0	2	0
3.	3	4	3	3	2	6	1	1	2	7
4.	2	9	1	6	2	3	1	2	1	5
5.	1	11	1	11	1	11		10	1	6
6.	1	3	2	0	1	11	2	10		11
7.	1	7		9	2	1	2	3	1	3
8.	1	6	2	9	2	1	1	11		8

	(a)		(b)	
	s.	*d.*	*s.*	*d.*
9.	1	10		8
10.	2	0		6
11.		10	1	2
12.	1	9		9
13.		$7\frac{1}{2}$		$4\frac{1}{2}$
14.	2	3	1	9
15.	1	$11\frac{1}{2}$		$0\frac{1}{2}$
16.	2	3		9

SUBTRACTION OF MONEY

(See pupil's page for graded exercises)

A. Subtraction of money should cause no difficulty if subtraction of number has been carefully taught. A 12 group (12*d.* = 1*s.*) replaces a 10 group (10 units) when the shilling is bridged, e.g. 3*s.* 0*d.* — 5*d.*
(See also page 29*a*.)

B. Shopping — buying and selling — giving change.

Every child in the class should have practice in acting as shopkeeper and customer. (See page 29*a*, A Practical, No. 3.) This exercise cannot be taken too often, for the giving and getting of change provides real practice in subtraction of money.

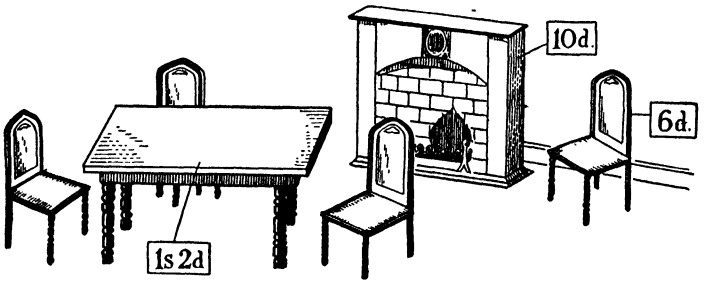
ORAL EXERCISES

Miscellaneous.

1. I had 3*s.* out of which I spent 1*s.* 4*d.* How much was left? (1*s.* 8*d.*)
2. 3*s.* 6*d.* — half a crown (1*s.*)
3. 3*s.* 4*d.* ÷ 4 (10*d.*); 3*s.* 6*d.* ÷ 6 (7*d.*); 2*s.* 1*d.* ÷ 5 (5*d.*)
4. Eggs were 1*s.* 6*d.* a dozen. How much must I pay for 30? (3*s.* 9*d.*)
5. How many girls can receive 6*d.* each out of 4*s.* (8)
6. Oranges are 14 for 1*s.*, how many shall I get for 2*s.* 6*d.*? (35)
7. Share 6 dozen apples among 6 children. How many for each? (12)
8. Grandma has lived 3 score and 10 years. What is her age? (70)

Exercise 31

Shopping. The Doll Shop



1. Buy 1 table and 2 chairs. How much must be paid?
2. Buy 4 chairs. How much must be paid?
3. Buy 1 table and 4 chairs. How much do they cost?
4. Buy 1 table, 1 fireplace, and 1 chair. What is the cost?
5. How much will 3 chairs and 1 fireplace cost?
6. How much will the set cost?
7. How much change should there be out of 4 shillings after paying for 3 chairs and 1 table?
8. How much change should there be out of 2 shillings after paying for 1 fireplace?
9. How much change should there be out of 4 shillings after paying for 2 chairs, 1 table, and 1 fireplace?

SHOPPING SUMS

	(*a*)	*s.*	*d.*	(*b*)	*s.*	*d.*
10.	3 books at 1*s.* 3*d.* each	=		39 pencils at 1*d.* each	=	
11.	11 toys at 4*d.* each	=		15 balls at 3*d.* each	=	
12.	37 penny cakes	=		2 toys at 1*s.* 7*d.* each	=	
13.	3 toys at 1*s.* 4*d.* each	=		3 pencil cases at 11*d.* each	=	
	(*a*)	*s.*	*d.*	(*b*)	*s.*	*d.*
14.	1 box of paints at 11*d.*	=		1 doll's house at 1*s.* 9*d.*	=	
	3 paint brushes at 3½*d.* each	=		2 doll's chairs at 7*d.* each	=	
	2 painting books at 6*d.* each	=		1 doll's bed at 11*d.*	=	
	Total			Total		

Exercise 31

Shopping. The Doll Shop

ANSWERS

1. 2*s.* 2*d.*
2. 2*s.*
3. 3*s.* 2*d.*
4. 2*s.* 6*d.*
5. 2*s.* 4*d.*
6. 4*s.*
7. 1*s.* 4*d.*
8. 1*s.* 2*d.*
9. 1*s.*
10. (*a*) 3*s.* 9*d.*; (*b*) 3*s.* 3*d.*
11. (*a*) 3*s.* 8*d.*; (*b*) 3*s.* 9*d.*
12. (*a*) 3*s.* 1*d.*; (*b*) 3*s.* 2*d.*
13. (*a*) 4*s.*; (*b*) 2*s.* 9*d.*

14.

	(*a*)		(*b*)	
	s.	*d.*	*s.*	*d.*
		11	1	9
		10½	1	2
	1	0		11
	2	9½	3	10

ORAL EXERCISES

Miscellaneous.

1. Butter 11*d.* and sugar 9*d.* Cost? (1*s.* 8*d.*)
2. Change from half a crown after paying 1*s.* 8*d.* (10*d.*)
3. 3 toys at 7½*d.* each. Cost? (1*s.* 10½*d.*)
4. 1 dozen eggs cost 2*s.* How much for half a dozen? (1*s.*) How much each? (2*d.*)
5. How many penny stamps can I buy with 3*s.* (36)
6. Six Savings Stamps at 6*d.* each. Cost? (3*s.*)
7. Change from 1*s.* after buying 6 three-halfpenny stamps (3*d.*)
8. 11 penny stamps and 5 threepenny ones. Cost? (2*s.* 2*d.*)
9. Find the sum of 7, 9, and 13 (29).
10. Buy Savings Stamps (6*d.*) with 4*s.* How many? (8)

FURTHER HINTS

1. Ring work, using larger numbers (see pages 17*a* and 27*a*).
2. Rapid counting in like groups, forwards and backwards, as: 4, 8, 12, . . . 48; 5, 10, . . . 50; 6, 12, . . . 48; 10, 20, . . . 50; 12, 24, . . . 48.
3. Practice in measuring, e.g. length and width of a brick, round the wrist, etc.
4. Grouping a number of pennies in twelves, e.g. throw a number of pennies (say 45) on the table and ask a pupil to count the amount.

Exercise 32

Number to 70

Addition and Subtraction

1. 5 tens and 1 ten make 6 tens or 60.
   4 tens and 2 tens make ?; 2 tens + 2 tens + 2 tens = ?
   6 tens − 4 tens = ?; 6 tens − 2 tens = ?
2. (*a*) 30 + 20 + 10 = ?; (*b*) 10 + 30 + 10 + 10 = ?
3. Write the numbers that come before 30, forty-seven, 54, and fifty-nine. Now write the numbers that come after 23, thirty-nine, 48, and fifty-nine.
4. 6 tens and 1 ten make 7 tens or 70.
   5 tens and 2 tens = ?; 3 tens + 2 tens + 2 tens = ?
   7 tens − 1 ten = ?; 7 tens − 3 tens = ?
5. (*a*) 50 + 10 + 10 = ? (*b*) 10 + 20 + 20 + 20 = ?
6. Count by tens from 3 to 63, as: 3, 13, . . ., 63. Then count back again by tens from 63, . . ., 3.

	(*a*)	(*b*)	(*c*)	(*d*)	(*e*)	(*f*)
7.	14	11	15	26	40	19
	+15	+22	+25	+17	+16	+25
	+30	+27	+30	+23	+14	+25
8.	18	29	26	27	19	32
	+27	+15	+22	+18	+20	+19
	+24	+26	+18	+13	+31	+13

9. Find the missing figures:

	(*a*)	(*b*)	(*c*)	(*d*)	(*e*)	(*f*)
	27	39	32	33	17	39
	+**	+**	+**	+**	+**	+**
	62	70	70	62	63	66

10.						
From	65	70	70	69	61	63
Take	32	48	33	60	39	27

11. In a field there were 19 cows, 27 sheep, and 15 horses. How many animals were there altogether?
12. Write down twenty-nine and add to it the number that is next above it.
13. John has 33 marbles. How many more does he need to make 70?
14. How many must be added to 25 to make 63?

Exercise 32

Number to 70.
Addition and Subtraction

ANSWERS

	(a)	(b)	(c)	(d)	(e)	(f)
7.	59	60	70	66	70	69
9.	35	31	38	29	46	27

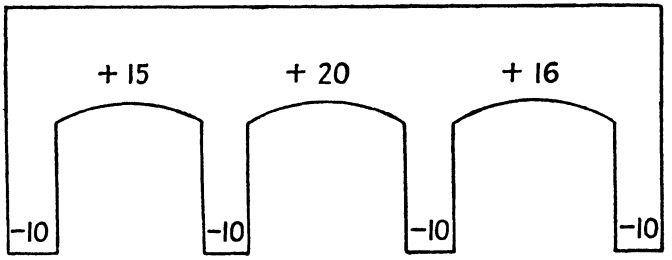
	(a)	(b)	(c)	(d)	(e)	(f)
8.	69	70	66	58	70	64
10.	33	22	37	9	22	36

11. 61 12. 59 13. 37 14. 38

A. PRACTICAL WORK

1. Number and Notation to 70. See teacher's page, 21*a*, Nos. 1*a*, 1*b*, 1*c*.
2. Tables to 70. See teacher's pages, 12*a* and 21*a*.
3. Diagrammatic work. See numbers 3 and 4 (Practical), teacher's page, 26*a*. Use other table items.
4. Estimation of length. Give each pupil a cyclostyled copy containing lines (vertical, horizontal, and oblique) which have been specially drawn to ensure that ample practice shall be given in judging (*a*) equalities, (*b*) multiples and sub-multiples; e.g. (*a*) Which of the lines are an inch long? (Make sure you get them all.) Test them by means of your ruler.
   (*b*) Which lines are three times as long as these you have just tested? (Make sure you get them all.) Test them by means of your ruler.
5. Yard stick. 3 feet = 1 yard; use the yard stick for measuring lengths of string, tape, elastic, etc.

SCORING GAME
(Practice in addition and subtraction)



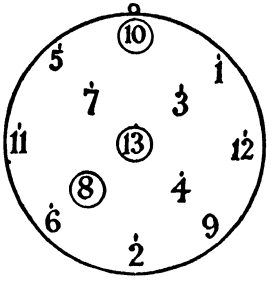
Cut out a piece of cardboard (wood) as shown. Use an ordinary ball (tennis ball) for throwing.

Rules.

1. Each player 3 throws, standing back 4 yards from the board.
2. Points for — through the holes.
3. Points against — hit the board.

Exercise 33

Number. Scoring Game



		(a)	(b)	(c)	(d)	(e)
1. Score:	First ring:	7	13	12	12	13
	Second ring:	11	13	12	12	8
	Third ring:	8	12	8	13	9
	Fourth ring:	13	9	13	7	13
	Totals	___	___	___	___	___

2. First boy:

Reds	*Blues*	*Greens*
$9+4+6+3=$	$10+10+1+4=$	$7+8+9+2=$
Second boy:		
$3+6+6+9=$	$9+8+12+7=$	$13+5+4+6=$
Third boy:		
$5+3+1+7=$ ___	$3+2+2+1=$ ___	$5+3+3+4=$ ___
Total = ___	Total = ___	Total = ___

3. Which team in number 2 wins? By how many?

4. Score 13, four times. How many have you scored altogether?

5. Score 10, 11, 12, and 13. How many short of 60 is your total?

	First Ring	*Second Ring*	*Third Ring*	*Fourth Ring*		*Total*
6. Score	13	13	12	?	=	50
7. Score	11	8	13	?	=	41
8. Score	9	?	11	13	=	42.

9. Play a game " 70 " up with your friend. Keep correct scores.

10. Make up a number story about sum 6.

Exercise 33

Number. Scoring Game

ANSWERS

1. (*a*) 39; (*b*) 47; (*c*) 45; (*d*) 44; (*e*) 43.
2. Reds, 62; Blues, 69; Greens, 69.
3. Greens and Blues (draw) win by 7.
4. 52.
5. 14.
6. 12.
7. 9.
8. 9.

COUNTING IN LIKE GROUPS

Number, Money, Length.

1. Count by fours from 4 to 48, as: 4, 8, 12, . . .
2. Count by fourpences from 4*d.* to 4*s.* (48*d.*), as: 4*d.*, 8*d.*, 1*s.*, . . .
3. Count by four inches from 4 inches to 48 in., as 4 in., 8 in., 1 foot, . . .
   (Note: 12*d.* = 1 shilling; 12 inches = 1 foot.)
4. Count by sixpences from 6*d.* to 4*s.* (48*d.*), as: 6*d.*, 1*s.*, . . .
5. Count by six inches from 6 in. to 4 feet, as: 6 in., 1 foot, . . .

ORAL EXERCISES

Miscellaneous.

1. How often must I cut a piece of string to cut it in halves? (Once)
2. How many times can I take 6 from 54? (9); from 60? (10)
3. Tom has 1 florin, 1 shilling, and a sixpence. How much altogether? (3*s.* 6*d.*)
4. How many pence in 3*s.* 6*d.*? (42)
5. How far is it all round an eight-inch square? (32 in.)
6. How many feet and inches in 32 inches? (2 ft. 8 in.)
7. How far is it round an oblong 7 inches long and 4 inches wide? (22 in.; 1 ft. 10 in.)
8. Find ½ of (*a*) 2*s.* 6*d.* (1*s.* 3*d.*); (*b*) ½ of 1 ft. 8 inches (10 in.); (*c*) ½ of 7*d.* (3½*d.*)
9. How much more than a florin is half a crown? (6*d.*)
10. How many wheels wanted for 9 motor-cars? (36)

Exercise 34

Number and Money

Multiplication and Division (Table Work)

	(a)	(b)	(c)	(d)	(e)	(f)
1.	3 × 3	9 × 6	9 × 5	8 × 4	4 × 6	7 × 6
	7 × 4	12 × 4	6 × 6	5 × 3	5 × 10	8 × 5
	8 × 6	10 × 5	11 × 3	3 × 9	9 × 4	6 × 4
	4 × 4	7 × 3	4 × 8	10 × 4	12 × 5	9 × 4
	6 × 5	5 × 5	5 × 7	2 × 7	10 × 6	8 × 3
2.	48 ÷ 12	28 ÷ 7	42 ÷ 7	36 ÷ 9	15 ÷ 5	24 ÷ 12
	40 ÷ 5	32 ÷ 4	30 ÷ 5	35 ÷ 5	27 ÷ 3	18 ÷ 9
	36 ÷ 6	27 ÷ 9	35 ÷ 7	33 ÷ 3	24 ÷ 4	24 ÷ 8
	36 ÷ 3	21 ÷ 3	40 ÷ 8	25 ÷ 5	24 ÷ 3	49 ÷ 7
	32 ÷ 8	44 ÷ 11	24 ÷ 6	28 ÷ 4	16 ÷ 4	54 ÷ 6

	(a)	(b)	(c)
	s. d.	s. d.	s. d.
3.	9*d.* × 4 =	4*d.* × 8 =	5*d.* × 8 =
	6*d.* × 7 =	6*d.* × 6 =	3*d.* × 8 =
	7*d.* × 3 =	7*d.* × 5 =	4*d.* × 12 =
	8*d.* × 4 =	9*d.* × 4 =	5*d.* × 9 =
	7*d.* × 2 =	5*d.* × 5 =	4*d.* × 4 =

	(a)	(b)	(c)
	s. d. pence	s. d. pence	s. d. pence
4.	1 0 ÷ 6 =	1 4 ÷ 8 =	3 0 ÷ 4 =
	3 6 ÷ 7 =	3 0 ÷ 6 =	1 6 ÷ 9 =
	4 0 ÷ 8 =	2 1 ÷ 5 =	4 0 ÷ 6 =
	2 8 ÷ 4 =	3 4 ÷ 5 =	2 3 ÷ 3 =
	2 11 ÷ 5 =	2 6 ÷ 3 =	1 9 ÷ 7 =

	(a)	(b)	(c)	(d)	(e)	(f)
5.	7 × 3	8 × 4	6 × 6	9 × 3	8 × 3	7 × 5
6.	10 × 2	3 × 9	12 × 2	7 × 2	6 × 10	8 × 6
7.	12 × 4	11 × 5	9 × 6	6 × 4	10 × 5	7 × 6

	(a)	(b)	(c)	(d)	(e)
8.	13+13+13 =	14+14 =	20+20 =	20+20+20=	
9.	13 × 3	14 × 2	20 × 2	20 × 3	65 × 1

Exercise 34

Number and Money. Multiplication and Division (Table Work)

ANSWERS

	(a)	(b)	(c)	(d)	(e)	(f)
1.	9	54	45	32	24	42
	28	48	36	15	50	40
	48	50	33	27	36	24
	16	21	32	40	60	36
	30	25	35	14	60	24

	(a)	(b)	(c)	(d)	(e)	(f)
2.	4	4	6	4	3	2
	8	8	6	7	9	2
	6	3	5	11	6	3
	12	7	5	5	8	7
	4	4	4	7	4	9

	(a)		(b)		(c)	
	s.	d.	s.	d.	s.	d.
3.	3	0	2	8	3	4
	3	6	3	0	2	0
	1	9	2	11	4	0
	2	8	3	0	3	9
	1	2	2	1	1	4

	(a)	(b)	(c)
	pence	pence	pence
4.	2	2	9
	6	6	2
	6	5	8
	8	8	9
	7	10	3

	(a)	(b)	(c)	(d)	(e)	(f)
5.	21	32	36	27	24	35
7.	48	55	54	24	50	42
9.	39	28	40	60	65	

	(a)	(b)	(c)	(d)	(e)	(f)
6.	20	27	24	14	60	48
8.	39	28	40	60		

MULTIPLICATION

Multiplication is the addition of equal quantities and should be approached from this point of view.

The difficulties should be introduced one at a time as follows:

1. Table work (times) set down in another way: $6 \times 7 = 42$;

$$\begin{array}{r} 6 \\ \times\ 7 \\ \hline 42 \end{array}$$

2. Beyond table work, as:

(a) Without a carrying figure, e.g.

$$\begin{array}{r} 13 \\ \times\ 3 \\ \hline \end{array} \qquad \begin{array}{r} 14 \\ \times\ 2 \\ \hline \end{array} \qquad \begin{array}{r} 30 \\ \times\ 2 \\ \hline \end{array} \qquad \begin{array}{r} 20 \\ \times\ 4 \\ \hline \end{array} \qquad \begin{array}{r} 36 \\ \times\ 1 \\ \hline \end{array}$$

(b) With a carrying figure, e.g.

$$\begin{array}{r} 16 \\ \times\ 2 \\ \hline \end{array} \quad \begin{array}{r} 17 \\ \times\ 2 \\ \hline \end{array} \quad \begin{array}{r} 15 \\ \times\ 3 \\ \hline \end{array} \quad \begin{array}{r} 16 \\ \times\ 3 \\ \hline \end{array} \quad \begin{array}{r} 14 \\ \times\ 4 \\ \hline \end{array} \quad \begin{array}{r} 27 \\ \times\ 2 \\ \hline \end{array} \quad \begin{array}{r} 18 \\ \times\ 3 \\ \hline \end{array} \quad \begin{array}{r} 19 \\ \times\ 3 \\ \hline \end{array}$$

Note: (a) and (b) should be approached through addition, as:

(a)

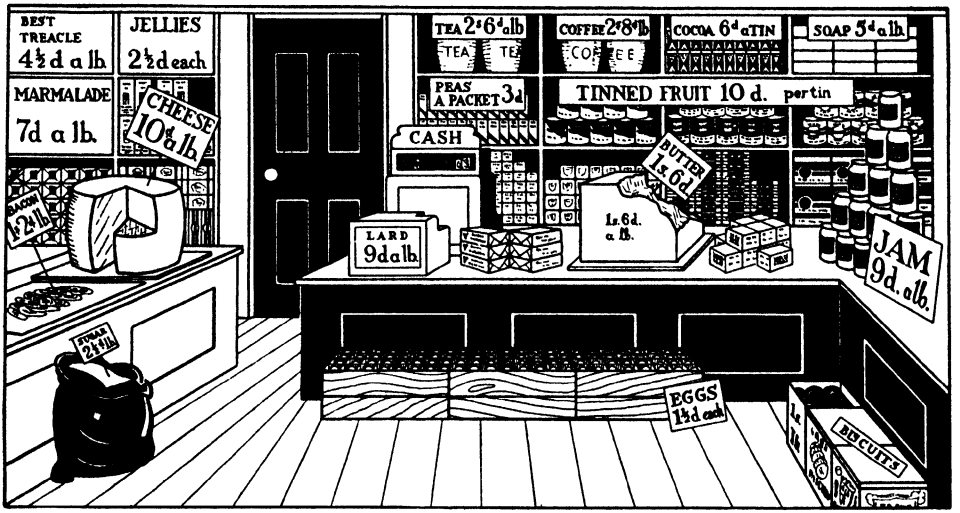
$$\begin{array}{r} 13 + 13 + 13 = 39 \\ 13 \\ \times\ 3 \\ \hline 39 \end{array}$$

(b)

$$\begin{array}{r} 16 + 16 = 32 \\ 16 \\ \times\ 2 \\ \hline 32 \end{array}$$

Exercise 35

Shopping. The Grocer's Shop



Find the cost in each sum:

1. (*a*) 1 lb. cheese and 1 lb. lard; (*b*) 3 lb. jam and 4 eggs; (*c*) 1 lb. tea and 1 tin of fruit.
2. (*a*) 3 lb. sugar and 1 packet peas; (*b*) 2 lb. biscuits and 1 lb. butter; (*c*) 2 jellies and 1 tin of cocoa.
3. (*a*) 3 lb. soap and 1 lb. coffee; (*b*) 2 lb. treacle and 2 eggs.

Find the cost of:

4. (*a*) ½ lb. butter and ½ lb. cheese; (*b*) ½ lb. lard and 4 eggs.
5. (*a*) ½ lb. bacon and ½ lb. tea; (*b*) 4 lb. sugar and ½ lb. biscuits.
6. (*a*) 3 lb. of soap and ½ lb. of coffee; (*b*) 1½ lb. of butter.

How much is left out of 4*s.* after paying for:

7. (*a*) 2 lb. of butter and 4 eggs? (*b*) 2 lb. of marmalade and ½ dozen eggs?
8. (*a*) 1 lb. of bacon, 2 lb. of sugar, and 1 lb. of butter? (*b*) 1½ lb. of biscuits, ½ lb. of cheese, and 1 tin of fruit?

Find the change from half a crown if we buy:

9. (*a*) ½ lb. of lard, ½ lb. of bacon, and 1 packet of peas; (*b*) ½ lb. of tea, ¼ lb. of coffee, and 2 eggs.
10. (*a*) 1 lb. of butter, 1 lb. of treacle, and 1 jelly; (*b*) 1½ dozen eggs.
11. How many packets of peas can I buy for: 1*s.*; 2*s.*; 1*s.* 6*d.*?

Exercise 35

Shopping. The Grocer's Shop

ANSWERS

	(*a*)	(*b*)	(*c*)
1.	1*s.* 7*d.*	2*s.* 9*d.*	3*s.* 4*d.*
2.	10½*d.*	3*s.* 6*d.*	11*d.*
3.	3*s.* 11*d.*	1*s.*	
4.	1*s.* 2*d.*	10½*d.*	

	(*a*)	(*b*)
5.	1*s.* 10*d.*	1*s.* 4*d.*
6.	2*s.* 7*d.*	2*s.* 3*d.*
7.	6*d.*	2*s.* 1*d.*
8.	11*d.*	1*s.* 3*d.*

	(*a*)	(*b*)
9.	1*s.* 3½*d.*	4*d.*
10.	5*d.*	3*d.*
11.	4; 8; 6	

A. PRACTICAL WORK

An Introduction to Weight.

Have ready to hand for the lesson: (1) A pair of scales. (2) Weights: 1 oz., 2 oz., 4 oz. (¼ lb.), 8 oz. (½ lb.), and 1 lb. (3) Balls of plasticine, or packets of sand, each weighing 1 oz.

(*a*) An examination of the weights. Talk about the weights and how they are used for weighing. Write on the blackboard:

1 lb. = 1 pound (weight); 1 oz. = 1 ounce.

(*b*) What weights are used at the grocer's shop for weighing, say, sugar? (2 lb., 1 lb.); for weighing, say, butter? (1 lb., ½ lb., and ¼ lb.) As the weights are named show them and allow the children to examine them.

(*c*) What weights are used at the sweet shop? (1 oz., 2 oz., ¼ lb., ½ lb.)

(*d*) Show, by weighing the balls of plasticine (packets of sand) that:

16 oz. = 1 lb.; 8 oz. = ½ lb.; 4 oz. = ¼ lb.

B. ORAL EXERCISES

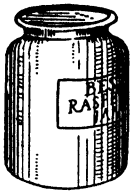
1. What weights will be required to weigh, say, 3 oz. flour? (1 oz. + 2 oz.); 10 oz. of flour? (½ lb. + 2 oz.); etc.
2. How many ½ lb. in 1 lb.? (2); in 3 lb.? (6); in 4½ lb.? (9); etc.
3. How many ¼ lb. in 1 lb.? (4); in 4 lb.? (16); in 5½ lb.? (22); etc.
4. ½ lb. butter at 1*s.* 6*d.* a lb. (9*d.*); ½ lb. bacon at 1*s.* 2*d.* a lb. (7*d.*); etc.
5. ¼ lb. cheese at 1*s.* a lb. (3*d.*); ¼ lb. lard at 8*d.* a lb. (2*d.*)
6. ¼ lb. sweets cost 9*d.* How much a lb.? (3*s.*); a ½ lb? (1*s.* 6*d.*); etc.

Exercise 36

Number and Money. Revision

A

1. 3 + 8 =
2. 17 + 6 =
3. 24 + 9 =
4. 35 + 26 =
5. 17 − 9 =
6. 43 − 7 =
7. 55 − 30 =
8. 61 − 27 =
9. 6 × 6 =
10. 7 × 5 =
11. 20 × 3 =
12. 9 × 6 =
13. 24 ÷ 3 =
14. 30 ÷ 5 =
15. 40 ÷ 2 =
16. 36 ÷ 4 =
17. $3\frac{1}{2}d.$ + 4*d.* =
18. 10*d.* + 11*d.* = .. *s.* .. *d.*
19. 3*s.* 0*d.* + $9\frac{1}{2}d.$ = .. *s.* .. *d.*
20. 1*s.* 8*d.* − 10*d.* = .. *d.*
21. 33*d.* = .. *s.* .. *d.*
22. 2*s.* 5*d.* = .. *d.*
23. 9*d.* × 5 = .. *s.* .. *d.*
24. 2*s.* 8*d.* ÷ 4 = .. *d.*
25. 31 inches = .. feet .. inches.



JAM. 2 lb. for 1s. 10d

SYRUP 1 lb tin..5d.

TEA ¼ lb packet... 9d.

PEPPER 2oz. tin... 4d.

B

1. 5 + 9 =
2. 13 + 8 =
3. 27 + 6 =
4. 29 + 32 =
5. 18 − 9 =
6. 52 − 5 =
7. 67 − 40 =
8. 53 − 29 =
9. 5 × 5 =
10. 12 × 3 =
11. 30 × 2 =
12. 8 × 6 =
13. 30 ÷ 3 =
14. 32 ÷ 4 =
15. 45 ÷ 5 =
16. 54 ÷ 6 =
17. $3\frac{1}{2}d.$ + $3\frac{1}{2}d.$ =
18. 9*d.* + 10*d.* = .. *s.* .. *d.*
19. 2*s.* 0*d.* + $7\frac{1}{2}d.$ = .. *s.* .. *d.*
20. 1*s.* 7*d.* − 11*d.* = .. *d.*
21. 45*d.* = .. *s.* .. *d.*
22. 3*s.* 6*d.* = .. *d.*
23. 8*d.* × 6 = .. *s.* .. *d.*
24. 3*s.* 4*d.* ÷ 4 = .. *d.*
25. 41 inches = .. feet .. inches.

Exercise 36

Number and Money. Revision

ANSWERS

A

1. 11	6. 36	11. 60	16. 9	21. 2*s.* 9*d.*
2. 23	7. 25	12. 54	17. 7½*d.*	22. 29*d.*
3. 33	8. 34	13. 8	18. 1*s.* 9*d.*	23. 3*s.* 9*d.*
4. 61	9. 36	14. 6	19. 3*s.* 9½*d.*	24. 8*d.*
5. 8	10. 35	15. 20	20. 10*d.*	25. 2 ft. 7 in.

B

1. 14	6. 47	11. 60	16. 9	21. 3*s.* 9*d.*
2. 21	7. 27	12. 48	17. 7*d.*	22. 42*d.*
3. 33	8. 24	13. 10	18. 1*s.* 7*d.*	23. 4*s.*
4. 61	9. 25	14. 8	19. 2*s.* 7½*d.*	24. 10*d.*
5. 9	10. 36	15. 9	20. 8*d.*	25. 3 ft. 5 in.

A. PICTORIAL WORK

(Based on the pictures, pupil's page)

1. How much change out of half a crown after paying for a 2 lb. pot of jam? (8*d.*)
2. 1 pot (2 lb.) of jam and 1 tin (1 lb.) of syrup (2*s.* 3*d.*)
3. How much per lb. is the tea? (3*s.*); per ½ lb? (1*s.* 6*d.*)
4. How much per ¼ lb. is pepper? (8*d.*); how much per lb.? (2*s.* 8*d.*)
5. ½ lb. of tea + ½ lb. pepper (2*s.* 10*d.*) How much change out of 3*s.* 6*d.*? (8*d.*)
6. 2 lb. jam + 1 lb. syrup + ½ lb. tea (3*s.* 9*d.*) Change from 4*s.* (3*d.*)

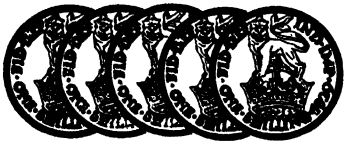
B. ORAL EXERCISES

Miscellaneous.

1. 5 pairs of kippers at 5*d.* a pair (2*s.* 1*d.*) Change from 3*s.* (11*d.*)
2. Which is greater and by how many — 4 score or 5 dozen? (4 score by 20)
3. Find the number which is ½ of 78 (39).
4. The school yard is 84 feet wide. How many yards is that? (28)

Exercise 37

Money to 5s. Addition and Subtraction



1s.+1s.+1s.+1s.+1s.=5s.

2s.+2s.+1s.=5s.

2s. 6d.+2s. 6d.=5s.

	(a)	(b)	(c)	(d)	(e)	(f)
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
1. Add	2 6	2 1	2 3	3 4	2 2	3 6
to	2 4	2 8	2 8	1 7	2 7	1 5
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
2. Add	2 2	2 4	2 7	2 9	4 3	1 6
to	2 10	2 8	2 5	1 3	9	3 6
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
3. Add	1 7	2 7	2 11	2 9	2 10	2 8
to	1 6	1 9	1 10	1 6	1 10	1 5
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
4. From	4 9	4 5	3 9	4 8	4 10	4 9
take	7	3	1 6	3 5	3 7	4
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
5. From	5 0	5 0	5 0	5 0	5 0	5 0
take	9	11	5	6	1 7	2 8
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
6. From	3 1	4 3	3 7	4 9	4 5	3 6
take	2 9	2 6	2 11	1 10	3 7	2 9

7. Change 1 half-crown to (*a*) sixpences; (*b*) threepences.

8. Change 2 florins to (*a*) sixpences; (*b*) threepences.

9. Mother has 1 half-crown, 1 florin, and 1 sixpence in her purse. How much money has she altogether?

10. 1 florin + 1 shilling + 1 sixpence + 1 threepence + 1 penny. How much money is there altogether?

Exercise 37

Money to 5s.
Addition and Subtraction

ANSWERS

	(*a*)	(*b*)	(*c*)	(*d*)	(*e*)	(*f*)
1.	4*s.* 10*d.*	4*s.* 9*d.*	4*s.* 11*d.*	4*s.* 11*d.*	4*s.* 9*d.*	4*s.* 11*d.*
2.	5*s.*	5*s.*	5*s.*	4*s.*	5*s.*	5*s.*
3.	3*s.* 1*d.*	4*s.* 4*d.*	4*s.* 9*d.*	4*s.* 3*d.*	4*s.* 8*d.*	4*s.* 1*d.*
4.	4*s.* 2*d.*	4*s.* 2*d.*	2*s.* 3*d.*	1*s.* 3*d.*	1*s.* 3*d.*	4*s.* 5*d.*
5.	4*s.* 3*d.*	4*s.* 1*d.*	4*s.* 7*d.*	4*s.* 6*d.*	3*s.* 5*d.*	2*s.* 4*d.*
6.	4*d.*	1*s.* 9*d.*	8*d.*	2*s.* 11*d.*	10*d.*	9*d.*

7. (*a*) 5; (*b*) 10. 8. (*a*) 8; (*b*) 16. 9. 5*s.* 10. 3*s.* 10*d.*

A. PRACTICAL WORK

1. Money to 5*s.* See teacher's page, 23*a*, for method. Learn thoroughly the pence table to 60*d.* = 5*s.*
2. Relative values of coins to 5 shillings.
3. Actual shopping. See teacher's pages, 11*a* and 29*a*.

B. ORAL EXERCISES

Miscellaneous.

1. 6 lb. of sugar at 3*d.* lb. (1*s.* 6*d.*); 9 lb. (2*s.* 3*d.*); 12 lb. (3*s.*)
2. Which is more — 9 sixpences or 2 half-crowns? By how much? (Latter, by 6*d.*)
3. Buy 2 dozen eggs at 2*d.* each (4*s.*)
4. Change from 5*s.* after buying a pair of stockings at 2*s.* 11*d.* (2*s.* 1*d.*)
5. 5 lb. of apples at 5*d.* a lb. (2*s.* 1*d.*)
6. 4½ dozen penny pencils (4*s.* 6*d.*)
7. Mary got 9*d.* change out of a florin. How much did she spend? (1*s.* 3*d.*)
8. 1 half-crown + 1 florin (4*s.* 6*d.*)
9. 6 threepences + 3 sixpences (3*s.*)
10. ½ lb. sweets at 9*d.* a lb. (4½*d.*)
11. ½ lb. bacon at 1*s.* 6*d.* a lb. (9*d.*)
12. Change from half a crown after paying for slippers at 1*s.* 11*d.* (7*d.*)
13. Tom has 1 half-crown and 1 florin. How much is he short of 5*s.*? (6*d.*)
14. Sugar 1*s.* 6*d.* + flour 10*d.* How much spent? (2*s.* 4*d.*)

C. SUBTRACTION OF MONEY

Bridging the shillings. (See teacher's page, 29*a*.)

Exercise 38

Money. Multiplication and Division (Table Work)

Change to shillings and pence:

	(*a*)	(*b*)	(*c*)	(*d*)	(*e*)	(*f*)	(*g*)
1.	20*d.*	25*d.*	30*d.*	35*d.*	40*d.*	45*d.*	50*d.*
2.	19*d.*	29*d.*	39*d.*	49*d.*	59*d.*	32*d.*	47*d.*
3.	13*d.*	23*d.*	33*d.*	43*d.*	53*d.*	17*d.*	27*d.*
4.	14*d.*	24*d.*	34*d.*	44*d.*	54*d.*	37*d.*	57*d.*
5.	58*d.*	60*d.*	41*d.*	54*d.*	38*d.*	55*d.*	22*d.*

	(*a*)	(*b*)	(*c*)	(*d*)	(*e*)
6.	7*d.* × 6	9*d.* × 5	11*d.* × 4	8*d.* × 6	10*d.* × 6
7.	5*d.* × 7	9*d.* × 4	6*d.* × 5	8*d.* × 4	9*d.* × 3
8.	9*d.* × 6	6*d.* × 10	11*d.* × 5	10*d.* × 4	5*d.* × 5

9. (*a*) 37 penny cakes.
   (*b*) 11 balls at 4*d.* each.
   (*c*) 6 loaves at 5*d.* each.

10. (*a*) 43 penny stamps.
    (*b*) 1 dozen at 5*d.* each.
    (*c*) 7 books at 6*d.* each.

11. (*a*) 58 penny pencils.
    (*b*) 6 yards at 9*d.* a yard.
    (*c*) 10 goldfish at 4*d.* each.

12. (*a*) 39 penny pens.
    (*b*) 4 pairs at 5*d.* a pair.
    (*c*) 4 toys at 10*d.* each.

Reduce to pence:

	(*a*)		(*b*)		(*c*)		(*d*)		(*e*)		(*f*)	
	s.	*d.*	*s.*	*d.*	*s.*	*d.*	*s.*	*d.*	*s.*	*d.*	*s.*	*d.*
13.	1	7	2	3	3	2	4	6	5	0	2	7
14.	1	10	1	9	4	7	3	7	2	11	1	10
15.	2	5	3	5	2	8	2	6	4	0	4	3
16.	4	2	3	11	4	10	2	9	1	11	3	9

	(*a*)		(*b*)		(*c*)		(*d*)		(*e*)	
	s.	*d.*	*s.*	*d.*	*s.*	*d.*	*s.*	*d.*	*s.*	*d.*
17.	3	0 ÷ 6	3	4 ÷ 5	2	9 ÷ 3	3	6 ÷ 6	4	2 ÷ 5
18.	4	7 ÷ 5	2	8 ÷ 4	2	6 ÷ 6	2	3 ÷ 3	3	8 ÷ 4
19.	4	6 ÷ 6	5	0 ÷ 6	2	6 ÷ 5	3	4 ÷ 4	2	0 ÷ 3

20. (*a*) ½ lb. at 1*s.* 8*d.* lb.
    (*b*) ½ lb. at 1*s.* 4*d.* lb.
    (*c*) ½ lb. at 7*d.* lb.
    (*d*) ¼ lb. at 2*s.* 4*d.* lb.
    (*e*) ¼ lb. at 3*s.* 4*d.* lb.
    (*f*) ¼ lb. at 5*s.* lb.

Exercise 38

Money. Multiplication and Division (Table Work)

ANSWERS

	(*a*)	(*b*)	(*c*)	(*d*)	(*e*)	(*f*)	(*g*)
1	1*s.* 8*d.*	2*s.* 1*d.*	2*s.* 6*d.*	2*s.* 11*d.*	3*s.* 4*d.*	3*s.* 9*d.*	4*s.* 2*d.*
2.	1*s.* 7*d.*	2*s.* 5*d.*	3*s.* 3*d.*	4*s.* 1*d.*	4*s.* 11*d.*	2*s.* 8*d.*	3*s.* 11*d.*
3.	1*s.* 1*d.*	1*s.* 11*d.*	2*s.* 9*d.*	3*s.* 7*d.*	4*s.* 5*d.*	1*s.* 5*d.*	2*s.* 3*d.*
4.	1*s.* 2*d.*	2*s.*	2*s.* 10*d.*	3*s.* 8*d.*	4*s.* 6*d.*	3*s.* 1*d.*	4*s.* 9*d.*
5.	4*s.* 10*d.*	5*s.*	3*s.* 5*d.*	4*s.* 6*d.*	3*s.* 2*d.*	4*s.* 7*d.*	1*s.* 10*d.*
6.	3*s.* 6*d.*	3*s.* 9*d.*	3*s.* 8*d.*	4*s.*	5*s.*		
7.	2*s.* 11*d.*	3*s.*	2*s.* 6*d.*	2*s.* 8*d.*	2*s.* 3*d.*		
8.	4*s.* 6*d.*	5*s.*	4*s.* 7*d.*	3*s.* 4*d.*	2*s.* 1*d.*		
9.	3*s.* 1*d.*	3*s.* 8*d.*	2*s.* 6*d.*				
10.	3*s.* 7*d.*	5*s.*	3*s.* 6*d.*				
11.	4*s.* 10*d.*	4*s.* 6*d.*	3*s.* 4*d.*				
12.	3*s.* 3*d.*	1*s.* 8*d.*	3*s.* 4*d.*				
13.	19*d.*	27*d.*	38*d.*	54*d.*	60*d.*	31*d.*	
14.	22*d.*	21*d.*	55*d.*	43*d.*	35*d.*	22*d.*	
15.	29*d.*	41*d.*	32*d.*	30*d.*	48*d.*	51*d.*	
16.	50*d.*	47*d.*	58*d.*	33*d.*	23*d.*	45*d.*	
17.	6*d.*	8*d.*	11*d.*	7*d.*	10*d.*		
18.	11*d.*	8*d.*	5*d.*	9*d.*	11*d.*		
19.	9*d.*	10*d.*	6*d.*	10*d.*	8*d.*		
20.	10*d.*	8*d.*	3½*d.*	7*d.*	10*d.*	1*s.* 3*d.*	

An Introduction.

CAPACITY

The following are required: (*a*) pint and quart measure; (*b*) a bucket of water.

(*a*) Talk about the pint and quart measure, how they are used, and for what purposes. Show that 2 pints = 1 quart. (Fill the quart measure with water, using the pint measure for this purpose.)

(*b*) Who uses the pint measure? The dairyman (milk); the grocer (vinegar).

(*c*) Who uses the quart measure? The dairyman (milk); the chandler (paraffin).

(*d*) How much water will the jam-jar hold? Guess and then test.

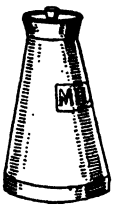
Practical Work.

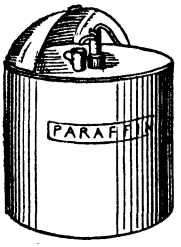
FURTHER HINTS

1. Guess the weight of the book. Test by means of the scales and weights; etc., etc.
2. Measure 6 yards of string (use the yard stick).
3. Receive 2½ lb. of potatoes at 1*d.* a lb. Pay for them with 6*d.*, and get the correct change.

Exercise 39

Number and Money. Revision





A	B
1. 4 + 8 =	1. 7 + 9 =
2. 15 + 6 =	2. 16 + 8 =
3. 27 + 9 =	3. 27 + 6 =
4. 37 + 10 =	4. 29 + 20 =
5. 33 + 29 =	5. 33 + 28 =
6. 15 − 9 =	6. 17 − 8 =
7. 48 − 9 =	7. 66 − 7 =
8. 70 − 18 =	8. 55 − 19 =
9. 70 − 50 =	9. 70 − 30 =
10. 8 × 5 =	10. 7 × 5 =
11. 9 × 6 =	11. 9 × 4 =
12. 11 × 5 =	12. 12 × 4 =
13. 60 ÷ 5 =	13. 54 ÷ 9 =
14. 50 ÷ 10 =	14. 70 ÷ 10 =
15. 35 ÷ 7 =	15. 30 ÷ 6 =
16. 3½*d.* + 7*d.* =	16. 8*d.* + 3½*d.* =
17. 1*s.* 9*d.* + 1*s.* 2*d.* =	17. 2*s.* 3*d.* + 1*s.* 8*d.* =
18. 1*s.* 5*d.* + 2*s.* 7*d.* =	18. 1*s.* 8*d.* + 2*s.* 4*d.* =
19. 2*s.* 8*d.* + 1*s.* 5*d.* =	19. 2*s.* 3*d.* + 1*s.* 11*d.* =
20. 50*d.* = .. *s.* .. *d.*	20. 55*d.* = .. *s.* .. *d.*
21. 3*s.* 5*d.* = .. *d.*	21. 4*s.* 3*d.* = .. *d.*
22. 10*d.* × 4 = .. *s.* .. *d.*	22. 9*d.* × 6 = .. *s.* .. *d.*
23. 3*s.* 8*d.* ÷ 4 = .. *d.*	23. 3*s.* 4*d.* ÷ 5 = .. *d.*
24. 30 inches = .. feet .. inches.	24. 34 inches = .. feet .. inches.
25. 3½ dozen =	25. 12 pairs =
26. 3*s.* 3*d.* − 2*s.* 9*d.* =	26. 3*s.* 7*d.* − 1*s.* 8*d.* =

Exercise 39

Number and Money. Revision

ANSWERS

A

1. 12	6. 6	11. 54	16. 10½*d.*	21. 41*d.*	26. 6*d.*
2. 21	7. 39	12. 55	17. 2*s.* 11*d.*	22. 3*s.* 4*d.*	
3. 36	8. 52	13. 12	18. 4*s.*	23. 11*d.*	
4. 47	9. 20	14. 5	19. 4*s.* 1*d.*	24. 2 ft. 6 in.	
5. 62	10. 40	15. 5	20. 4*s.* 2*d.*	25. 42	

B

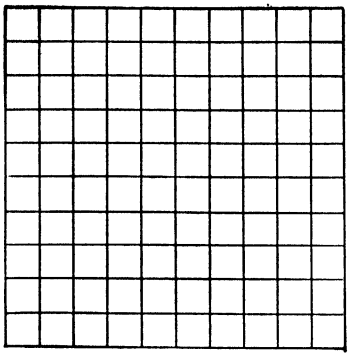
1. 16	6. 9	11. 36	16. 11½*d.*	21. 51*d.*	26. 1*s.* 11*d.*
2. 24	7. 59	12. 48	17. 3*s.* 11*d.*	22. 4*s.* 6*d.*	
3. 33	8. 36	13. 6	18. 4*s.*	23. 8*d.*	
4. 49	9. 40	14. 7	19. 4*s.* 2*d.*	24. 2 ft. 10 in.	
5. 61	10. 35	15. 5	20. 4*s.* 7*d.*	25. 24	

PICTORIAL WORK

(Based on the pictures, pupil's page)

1. How much for a quart of milk? (7*d.*) Change from 1*s.* (5*d.*)
2. 3 pints of milk (10½*d.*)
3. A pint of milk in the morning and another in the afternoon. How much is the milk bill for a full week? (4*s.* 1*d.*) Change from 5*s.* (11*d.*)
4. How much is cream per ¼ pint? (6*d.*)
5. A motorist bought 3 quarts of motor oil. How much did it cost him? (5*s.*)
6. 2 quarts of milk and ¼ pint of cream. Change from 3*s.* (1*s.* 4*d.*)
7. 1 quart of paraffin (3*d.*); 1½ quarts (4½*d.*)
8. Change from 2*s.* 6*d.* after buying 4 quarts of paraffin (1*s.* 6*d.*)

Exercise 40
Number to 100



1. How many squares are there in the picture?
2. How many squares are there in 1 row?
3. How many rows are there? $10 \times 10 = ?$
4. Count the squares by tens, as: 10, 20, . . ., 100.
5. Cut out 10 rows of squares with 10 squares in a row. Number the squares, as: 1, 2, 3, 4, . . ., 100.
6. Which number comes before thirty-three, seventy-seven, fifty-six, forty-nine, sixty-eight, eighty-nine?
7. Read to the next boy: 39, 67, 75, 99, 84, 55, 77, 99, 35, and 57.
8. Cut up your large square (100 square) into slips (rows) of ten; then work the following sums, arranging your slips to show what you are doing.
   (*a*) 7 tens and 1 ten make ?; (*b*) 8 tens and 1 ten make ?
   (*c*) 9 tens and 1 ten make ?; (*d*) 7 tens and 3 tens make ?
   (*e*) $20 + 20 + 20 + 20 + 20 = ?$; (*f*) $30 + 30 + 30 + 10 = ?$
   (*g*) $40 + 30 + 20 + 10 = ?$; (*h*) $50 + 40 + 10 = ?$
   (*j*) From 80 take 30; (*k*) From 90 take 50.
9. Cut 1 slip (row) of squares into single squares. Then arrange your ten slips and single squares to show: 73, 59, 97, 85, 66, 39.
10. Count forwards by tens, starting at 3, as: 3, 13, 23, . . ., 93; then back again from 93 to 3.
11. $36 = \overset{t.}{3}\ \overset{u.}{6}$. Write under 36, the following numbers and say what each figure in the number stands for, as: 36 = 3 tens 6 units.
    Numbers: 27, 92, 38, 56, 49, 87.
12. 1, 3, 5, 7, and 9 are odd numbers. Write all the odd numbers between 1 and 100.
13. 2, 4, 6, 8, and 10 are even numbers. Write all the even numbers between 1 and 100.

Exercise 40

Number to 100

A. PRACTICAL WORK

1. Number and Notation to 100. See teacher's page, 21*a* (Nos. 1*a*, 1*b*, 1*c*).
2. Tables. Build up additional items (see teacher's pages, 12*a* and 21*a*) to complete all tables, to 6 times ($12 \times 6 = 72$).
3. Diagrammatic work. See teacher's page, 26*a* (additional items).

TABLE SQUARE

1	2	3	4	5	6	7	8	9	10	11	12
2	4	6	8	10	12	14	16	18	20	22	24
3	6	9	12	15	18	21	24	27	30	33	36
4	8	12	16	20	24	28	32	36	40	44	48
5	10	15	20	25	30	35	40	45	50	55	60
6	12	18	24	30	36	42	48	54	60	66	72
7	14	21	28	35	42				70		
8	16	24	32	40	48				80		
9	18	27	36	45	54				90		
10	20	30	40	50	60	70	80	90	100		
11	22	33	44	55	66						
12	24	36	48	60							

Use the square for:

(*a*) Multiplication and division tables.

(*b*) Adding and subtracting in like groups.

(*c*) Pence and inches table.

TABLES

Learn thoroughly:

(*a*) *Number*	(*b*) *Pence*	(*c*) *Inches*
	s. *d.*	ft. in.
Twos ($12 \times 2 = 24$)	12*d.* = 1 0	12 in. = 1 0
Threes ($12 \times 3 = 36$)	13*d.* = 1 1	13 in. = 1 1
Fours ($12 \times 4 = 48$)	14*d.* = 1 2	14 in. = 1 2
Fives ($12 \times 5 = 60$)	⋮ ⋮	⋮ ⋮
Sixes ($12 \times 6 = 72$)		
Tens ($10 \times 10 = 100$)	60*d.* = 5 0	60 in. = 5 0
(Note: $8 \times 6 = 6 \times 8$; etc.)		(Note: 3 ft. = 1 yard, etc.)

Exercise 41

Number. Addition and Subtraction

A. Addition means add; plus (+) means add.

	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)
1.	23	37	39	53	26	71	56	81
	+ 35	43	43	39	44	19	37	17
2.	57	62	50	73	26	37	44	71
	+ 36	27	29	19	58	38	48	19
3.	17	35	22	18	27	38	37	28
	+ 28	16	39	17	29	18	26	27
	+ 25	38	25	38	17	27	19	26

4. (*a*) Thirty-seven + forty-nine = ?. (*b*) Fifty-six plus twenty-seven.
5. Add together (*a*) 35, 22, and 18; (*b*) 27, 37, 19.
6. Find the sum of (*a*) 39, 44, and 9; (*b*) 50, 19, and 12.
7. Find the total of (*a*) twenty-nine and sixty-three; (*b*) 18, 26, and 27.
8. Jack had 43 marbles. He won 38 more. How many had he then?

B. Subtract means take away; minus (−) means take away.

	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)
1.	86	90	88	43	91	56	90	89
	− 34	27	38	27	78	26	30	37
2.	73	81	86	80	62	73	50	71
	− 18	58	53	56	47	26	49	38
3.	94	85	63	81	73	86	47	53
	− 58	24	18	27	56	56	28	39

4. (*a*) Ninety-one minus thirty-two; (*b*) seventy-six minus 39.
5. (*a*) From eighty-six take thirty-nine. (*b*) From fifty-five take thirty-five.
6. (*a*) What must be added to 37 to make 71? (*b*) From 90 subtract 26.
7. What is the difference between seventeen and thirty-six?
8. Mary had 73 white beads and 37 blue beads. How many more white beads than blue beads had she?

Exercise 41

Number. Addition and Subtraction

ANSWERS

A

	(*a*)	(*b*)	(*c*)	(*d*)	(*e*)	(*f*)	(*g*)	(*h*)	
1.	58	80	82	92	70	90	93	98	5. (*a*) 75; (*b*) 83
2.	93	89	79	92	84	75	92	90	6. (*a*) 92; (*b*) 81
3.	70	89	86	73	73	83	82	81	7. (*a*) 92; (*b*) 71
4.	86	83							8. 81

B

	(*a*)	(*b*)	(*c*)	(*d*)	(*e*)	(*f*)	(*g*)	(*h*)	
1.	52	63	50	16	13	30	60	52	5. (*a*) 47; (*b*) 20
2.	55	23	33	24	15	47	1	33	6. (*a*) 34; (*b*) 64
3.	36	61	45	54	17	30	19	14	7. 19
4.	59	37							8. 36

ADDITION

Note the different ways this has been presented in Nos. 4, 5, 6 and 7, letter A,

SUBTRACTION

Again note the different ways this has been presented in Nos. 4, 5, 6 and 7. letter B.

Miscellaneous.

ORAL EXERCISES

1. How many legs have 7 horses and 4 men? (36)
2. How many threepences in a florin? (8); a half-crown? (10)
3. How many fourpences make 1*s.* 8*d.*? (5)
4. $\frac{1}{2}$ dozen eggs at 1*s.* 10*d.* a dozen (11*d.*)
5. How many days in 5 weeks? (35)
6. What name is given to 3 dozen pence? (3*s.*); 3 dozen inches? (3 feet)
7. Change from half a crown after paying for 3 toys at 8*d.* each? (6*d.*)

COUNTING

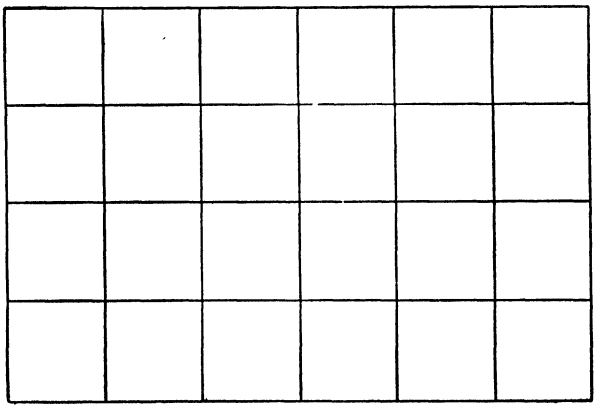
1. Count by fours from 20 to 60; from 71 to 91.
2. Count backwards by fives from 67.
3. Count by sixes from 21 to 51; from 1 to 31.

Exercise 42

Number. Multiplication

	(a)		(b)		(c)		(d)	
1.	14	14	20	20	13	13	30	30
	+14	× 2	+20	× 2	+13	× 2	+30	× 2
2.	13		20		30		32	
	+13	13	+20	20	+30	30	+32	32
	+13	× 3	+20	× 3	+30	× 3	+32	× 3
3.	14		16		15			
	+14	14	+16	16	+15	15	19	19
	+14	× 3	+16	× 3	+15	× 3	+19	× 2
4.	22	24	25	26	21	23	22	24
	× 2	× 2	× 2	× 2	× 3	× 3	× 3	× 3
5.	21	22	20	40	17	18	19	15
	× 4	× 4	× 4	× 2	× 2	× 2	× 2	× 2
6.	27	14	15	16	28	29	25	26
	× 2	× 3	× 3	× 3	× 2	× 2	× 3	× 3
7.	17	19	28	27	15	17	18	23
	× 3	× 3	× 3	× 3	× 4	× 4	× 3	× 4

8. (*a*) Find four times twenty-three; (*b*) three times twenty-seven.
9. (*a*) Multiply eighteen by four; (*b*) multiply fifteen by five.
10. (*a*) What are three times thirty-two? (*b*) six times thirteen?
11. (*a*) Measure the picture; then copy it. (*b*) How far is it all round? (*c*) How far is it round one small square?



12. If the picture stands for a tray for holding milk bottles, how many bottles will the tray hold?
13. If each bottle costs $\frac{1}{2}d.$, how much would be needed to pay for all the bottles in a full tray?

Exercise 42

Number. Multiplication

ANSWERS

	(*a*)	(*b*)	(*c*)	(*d*)		(*a*)	(*b*)	(*c*)	(*d*)
1.	28; 28	40; 40	26; 26	60; 60	2.	39; 39	60; 60	90; 90	96; 96
3.	42; 42	48; 48	45; 45	38; 38	4.	44; 48	50; 52	63; 69	63; 72
5.	84; 88	80; 80	34; 36	38; 30	6.	54; 42	45; 48	56; 58	75; 78
7.	51; 57	84; 81	60; 68	54; 92	8.	(*a*) 92;	(*b*) 81	9. (*a*) 72;	(*b*) 75

10. (*a*) 96; (*b*) 78 11. (*b*) 10 in.; (*c*) 2 in. 12. 24 13. 1*s*.

A. SIMPLE MULTIPLICATION

For method and graded exercises, see teacher's page, 34*a*.

Miscellaneous.

B. ORAL EXERCISES

1. How many school days in 4 weeks? (20); in 7 weeks? (35); in 9 weeks? (45)
2. How many pence in 2 half-crowns? (60)
3. How many days in a full week? (7); in 4 weeks? (28); in 6 weeks? (42)
4. Which months have 30 days? (—)
5. How far can you span? Try on your ruler.
6. If you can span 7 inches, what distance can you cover in 4 spans? (2 ft. 4 in.)
7. How much will 7 balls cost at 6*d*. each? (3*s*. 6*d*.)

C. FURTHER HINTS

1. Ring work for practice in tables (number, money, and inches).
2. Further lessons on factors (diagrammatic work).
3. Rapid counting. (This exercise should be taken at least once a week.)

(*a*) *Numbers*	(*b*) *Pence*	(*c*) *Inches*
2, 4, 6, . . ., 60	2*d*., 4*d*., 6*d*., . . ., 5*s*.	2 in., etc. . . ., 5 ft.
3, 6, 9, . . ., 60	3*d*., 6*d*., 9*d*., . . ., 5*s*.	3 in., etc. . . ., 5 ft.
4, 8, 12, . . ., 60	4*d*., 8*d*., 1*s*., . . ., 5*s*.	4 in., etc. . . ., 5 ft.
5, 10, 15, . . ., 60	5*d*., 10*d*., 1*s*. 3*d*., . . ., 5*s*.	5 in., etc. . . ., 5 ft.
6, 12, 18, . . ., 60	6*d*., 1*s*., 1*s*. 6*d*., . . ., 5*s*.	6 in., etc. . . ., 5 ft.

4. **Division.** Making use of the tables (2 to 6 times) in division with remainders.
   (*a*) 13 ÷ 2; 15 ÷ 2; etc. . . . 25 ÷ 2
   (*b*) 13 ÷ 3; 14 ÷ 3; etc. . . . 38 ÷ 3
   (*c*) 13 ÷ 4; 14 ÷ 4; etc. . . . 51 ÷ 4
   (*d*) 13 ÷ 5; 14 ÷ 5; . . . 64 ÷ 5
   (*e*) 13 ÷ 6; 14 ÷ 6; . . . 77 ÷ 6

Exercise 43

Money. Multiplication

	(a)	(b)	(c)	(d)	(e)	(f)
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
1.	4	7	5	6	9	8
	× 4	× 6	× 3	× 6	× 3	× 4
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
2.	5	9	7	9	7	5
	× 4	× 6	× 3	× 5	× 5	× 6
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
3.	1 2	1 2	2 3	2 3	1 5	1 5
	+1 2	× 2	+2 3	× 2	+1 5	× 2
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
4.	1 3	1 3	1 2	1 2	1 1	1 1
	+1 3	× 3	+1 2	× 3	+1 1	× 3
	+1 3		+1 2		+1 1	
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
5.	1 6	1 6	1 4	1 4	1 8	1 8
	+1 6	× 2	+1 4	× 3	+1 8	× 3
			+1 4		+1 8	
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
6.	1 2	1 3	1 9	2 0	2 2	1 5
	× 4	× 4	× 2	× 2	× 2	× 3
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
7.	10	1 6	11	1 7	10	1 8
	× 6	× 3	× 5	× 3	× 6	× 3

SHOPPING SUMS

	(a)	s. d.	(b)	s. d.
8.	3 toys at 1*s.* 5*d.* each	=	8 balls at 7*d.* each	=
9.	5 yards at 1½*d.* a yard	=	3 pears at 1½*d.* each	=
10.	5 lb. at 7*d.* a lb.	=	1½ dozen eggs at 2*d.* each	=
11.	9 books at 6*d.* each	=	3 books at 1*s.* 8*d.* each	=
12.	2 bats at 1*s.* 9*d.* each	=	4 yards at 1*s.* 3*d.* a yard	=
13.	3 lb. at 1*s.* 6*d.* a lb.	=	2 lb. at 1*s.* 7*d.* a lb.	=
14.	2 yards at 1*s.* 11*d.* a yard	=	2 toys at 1*s.* 10*d.* each	=
15.	4 tops at 2½*d.* each	=	3 pencils at 3½*d.* each	=

Exercise 43

Money. Multiplication

ANSWERS

	(a)		(b)		(c)		(d)		(e)		(f)	
	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.
1.	1	4	3	6	1	3	3	0	2	3	2	8
2.	1	8	4	6	1	9	3	9	2	11	2	6
3.	2	4	2	4	4	6	4	6	2	10	2	10
4.	3	9	3	9	3	6	3	6	3	3	3	3
5.	3	0	3	0	4	0	4	0	5	0	5	0
6.	4	8	5	0	3	6	4	0	4	4	4	3
7.	5	0	4	6	4	7	4	9	5	0	5	0
8.	4	3	4	8								

	(a)		(b)	
	s.	d.	s.	d.
9.		$7\frac{1}{2}$		$4\frac{1}{2}$
10.	2	11	3	0
11.	4	6	5	0
12.	3	6	5	0
13.	4	6	3	2
14.	3	10	3	8
15.		10		$10\frac{1}{2}$

A. MULTIPLICATION OF MONEY

This should present no difficulty. On the pupil's page are to be found graded exercises.

B. FURTHER HINTS

1. Ring work for practice in multiplication, calling the result pence each time, and changing to shillings and pence.
2. Magic Squares — multiplication.

A

9	4	5
2	6	10
7	8	3

(*a*) Build up other " magic " squares from A by multiplying each number by 2, 3, 4, 5, or 6.

(*b*) Call the results pence and change to shillings and pence.

B

17	7	9
3	11	19
13	15	5

Repeat (*a*) above — multiplying only by 2 and 3.

Repeat (*b*) above.

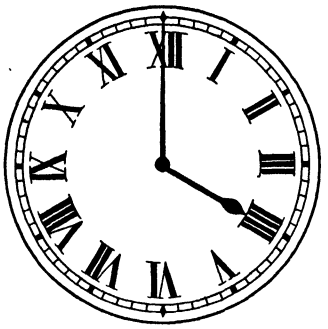
C. MECHANICAL DICTATED

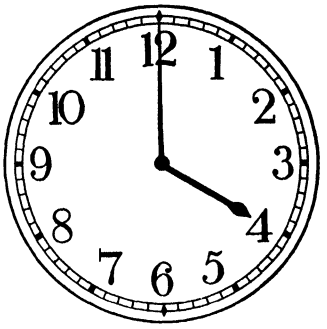
Division, with and without remainders.

1. $36 \div 4$; $38 \div 6$; $38 \div 3$; $54 \div 6$; $59 \div 6$; $33 \div 5$; $75 \div 6$.
2. $73 \div 6$; $35 \div 3$; $39 \div 4$; $28 \div 4$; $34 \div 4$; $27 \div 6$; $61 \div 6$.

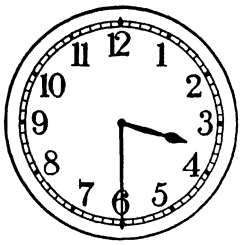
Exercise. 44

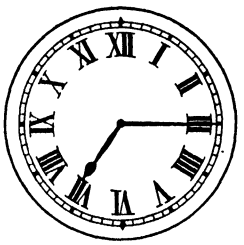
The Clock. Telling the Time

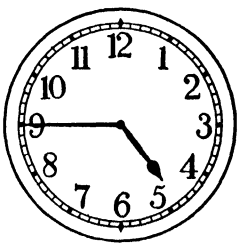




1. Look at the clock faces. What time do they show?
2. When the minute (large) hand is at XII, what is the time when the hour (small) hand is at VII?; at X?; at II?; at XI?
3. How long does it take the long (minute) hand to go once round the face?
4. What time will the clock face above show when the minute hand has gone (*a*) half-way round the face?; (*b*) once round the face?
5. How many minutes in 1 hour?; in half an hour?; in a quarter of an hour?
6. Count by fives, the minutes in an hour; then count them by tens.
7. Say in another way (*a*) 15 minutes past 3; (*b*) thirty minutes past 3; (*c*) 45 minutes past 3; (*d*) 40 minutes past 3.
8. Look at the clock faces below. What time does each face show?







9. Tell the time (*a*) every 5 minutes, from 4 to 5 o'clock; (*b*) every ten minutes, from 12 to 1 o'clock.

Exercise 44

The Clock. Telling the Time

ANSWERS

1. 4 o'clock; 2. 7, 10, 2, and 11 o'clock; 3. 60 min.; 4. (*a*) 4.30; (*b*) 5 o'clock; 5. 60; 30; 15; 6. — ; 7. (*a*) ¼ past 3; (*b*) ½ past 3; (*c*) ¼ to 4; (*d*) 20 min. to 4; 8. ½ past 3; ¼ past 7; ¼ to 5.

PRACTICAL WORK

The Clock Face.

(*a*) Examination of a clock face for hours and minutes. How many hours shown? (12) Name them, pointing them out at the same time, as: I, II, III ... XII (Roman Numerals) or 1, 2, 3 ... 12 (Arabic Numerals).

How many minutes shown? (60, 5 between any two consecutive hour numbers)

(*Note*: a minute is represented by the space between any two consecutive minute marks.)

(*b*) Set the long hand at XII and the short hand at III. What time does the clock show? (3 o'clock)

(*c*) Turn the long hand once round the face and watch the small hand. What do you notice? (The small hand moved with it, but at a much slower rate, covering the distance between 3 and 4 (1 hour), whilst the large hand makes one complete turn round the face.) What time does the clock show now? (4 o'clock)

60 minutes = 1 hour.

(*d*) Repeat (*c*). What time does the clock show now? (5 o'clock)

(*e*) Set the hands to show 9 o'clock; 1 o'clock; etc., etc.

(*f*) Show half-past 3. Where is the long hand? (at VI) Show half-past 1; half-past 4; etc.

(*g*) Show quarter-past 3. Where is the long hand? (at III) Show quarter-past 8; etc.

(*h*) Tell the time every 5 minutes from 1 o'clock to 2 o'clock, as: 5 minutes past 1; 10 min. past 1; etc. (*Note*: 35 minutes past 1 is spoken of as 25 minutes to 2; 45 min. past 1 as ¼ to 2.)

(*i*) Tell the time every 10 minutes from 2 o'clock to 3 o'clock.

Exercise 45

Number. Division

A

	(a)	(b)	(c)	(d)	(e)
1.	4 | 40	6 | 60	5 | 50	3 | 30	2 | 20
2.	2 | 40	2 | 60	2 | 80	3 | 60	3 | 90
3.	2 | 26	3 | 39	4 | 48	5 | 55	6 | 66
4.	2 | 48	2 | 86	3 | 66	3 | 96	4 | 84
5.	2 | 30	2 | 50	2 | 70	2 | 90	4 | 60
6.	2 | 32	2 | 36	2 | 34	2 | 38	3 | 42
7.	4 | 52	4 | 56	4 | 92	4 | 96	5 | 65
8.	6 | 72	6 | 78	4 | 68	4 | 64	5 | 75
9.	4 | 76	4 | 72	5 | 95	6 | 96	3 | 48
10.	5 | 85	2 | 96	3 | 45	3 | 75	3 | 84

B

	(a)	(b)	(c)	(d)	(e)
1.	2 | 27	2 | 25	2 | 29	2 | 23	3 | 34
2.	2 | 17	2 | 19	4 | 49	4 | 45	6 | 37
3.	5 | 56	6 | 67	4 | 37	3 | 37	2 | 15
4.	2 | 35	3 | 40	4 | 50	5 | 62	6 | 75
5.	2 | 37	3 | 44	4 | 53	5 | 87	6 | 81
6.	2 | 39	3 | 47	4 | 54	5 | 92	6 | 87
7.	2 | 51	3 | 50	4 | 57	5 | 97	6 | 93
8.	2 | 57	3 | 55	4 | 61	6 | 68	6 | 82
9.	2 | 59	3 | 58	4 | 65	6 | 76	6 | 95
10.	2 | 71	3 | 70	4 | 69	6 | 82	4 | 78
11.	2 | 73	3 | 73	4 | 73	6 | 88	4 | 95
12.	2 | 75	3 | 76	4 | 77	6 | 94	5 | 84

Exercise 45
Number. Division

ANSWERS

A

	(a)	(b)	(c)	(d)	(e)		(a)	(b)	(c)	(d)	(e)
1.	10	10	10	10	10	6.	16	18	17	19	14
2.	20	30	40	20	30	7.	13	14	23	24	13
3.	13	13	12	11	11	8.	12	13	17	16	15
4.	24	43	22	32	21	9.	19	18	19	16	16
5.	15	25	35	45	15	10.	17	48	15	25	28

B

	(a)	(b)	(c)	(d)	(e)
1.	13 (1 over)	12 (1 over)	14 (1 over)	11 (1 over)	11 (1 over)
2.	8 (1 over)	9 (1 over)	12 (1 over)	11 (1 over)	6 (1 over)
3.	11 (1 over)	11 (1 over)	9 (1 over)	12 (1 over)	7 (1 over)
4.	17 (1 over)	13 (1 over)	12 (2 over)	12 (2 over)	12 (3 over)
5.	18 (1 over)	14 (2 over)	13 (1 over)	17 (2 over)	13 (3 over)
6.	19 (1 over)	15 (2 over)	13 (2 over)	18 (2 over)	14 (3 over)
7.	25 (1 over)	16 (2 over)	14 (1 over)	19 (2 over)	15 (3 over)
8.	28 (1 over)	18 (1 over)	15 (1 over)	11 (2 over)	13 (4 over)
9.	29 (1 over)	19 (1 over)	16 (1 over)	12 (4 over)	15 (5 over)
10.	35 (1 over)	23 (1 over)	17 (1 over)	13 (4 over)	19 (2 over)
11.	36 (1 over)	24 (1 over)	18 (1 over)	14 (4 over)	23 (3 over)
12.	37 (1 over)	25 (1 over)	19 (1 over)	15 (4 over)	16 (4 over)

A. PREPARATORY WORK

Revision of Notation.

(*a*) What is the value of each figure in: 17, 32, 29, 53, 37, etc.? (1 ten, 7 units; 3 tens, 2 units; etc.)

(*b*) 2 tens ÷ 2; 4 tens ÷ 2; 6 tens ÷ 3; etc. (1 ten, 2 tens, 2 tens, etc.)

(*c*) How many *twos* in each figure underlined: 20, 40, 48, 62, etc.? (10, 20, 20, 30, etc.)

B. GRADED EXERCISES

If the exercises be graded as shown, the difficulties are introduced one at a time.

1. Ten groups only, as 40 ÷ 5.
2. Ten groups and units divide exactly, as: 48 ÷ 2.
3. Changing a *ten* group to units without the addition of units, as: 30 ÷ 2.
4. Changing a *ten* group to units with the addition of units, as: 42 ÷ 3.

C. PRACTICAL WORK

Use counters, sticks, or matches — *ten* groups and singles.

Practical work and blackboard work should go hand in hand. Division without remainders should precede division with remainders.

Bridging the ten. See over (page 46*a*) for practical work.

Exercise 46

A. Money; Division. B and C; Revision

A

	(a)	(b)	(c)	(d)	(e)	(f)
1.	2 | 2 s. 2 d.	2 | 4 s. 8 d.	3 | 3 s. 9 d.	4 | 4 s. 8 d.	2 | 4 s. 10 d.	3 | 3 s. 6 d.
2.	1 s. 6 d. ÷ 3	3 | 1 s. 6 d.	2 4 ÷ 4	4 | 2 s. 4 d.	4 6 ÷ 6	6 | 4 s. 6 d.
3.	2 s. 6 d. ÷ 5	5 | 2 s. 6 d.	1 9 ÷ 3	3 | 1 s. 9 d.	2 1 ÷ 5	5 | 2 s. 1 d.
4.	2 | 3 s. 0 d.	3 | 4 s. 0 d.	4 | 5 s. 0 d.	2 | 3 s. 2 d.	2 | 3 s. 6 d.	2 | 3 s. 10 d.
5.	2 | 3 s. 4 d.	2 | 3 s. 8 d.	3 | 4 s. 3 d.	3 | 4 s. 6 d.	3 | 4 s. 9 d.	2 | 5 s. 0 d.
6.	4 | 5 s. 0 d.	3 | 5 s. 0 d.	2 | 5 s. 0 d.	4 | 3 s. 8 d.	3 | 2 s. 3 d.	6 | 1 s. 6 d.

B

1. 9 + 5
2. 18 + 7
3. 28 + 39
4. 14 − 8
5. 32 − 9
6. 72 − 38
7. 6 × 5
8. 9 × 6
9. 25 ÷ 5
10. 28 ÷ 3
11. 79 ÷ 6
12. 2*s.* 0*d.* + 3½*d.*
13. 3*s.* 5*d.* − 1*s.* 10*d.*
14. 1*s.* 7*d.* × 3
15. 4*s.* 6*d.* ÷ 3

C

1. 8 + 7
2. 28 + 9
3. 35 + 56
4. 33 − 19
5. 7 × 5
6. 31 ÷ 6
7. 85 ÷ 4
8. 2*s.* 7*d.* + 1*s.* 9*d.*
9. 3*s.* 3*d.* − 1*s.* 7*d.*
10. 1*s.* 5*d.* × 3
11. 5*s.* 0*d.* ÷ 3
12. 41*d.* = .. *s.* .. *d.*
13. 39 inches = .. feet .. inches.
14. 3*s.* 9*d.* = .. *d.*
15. 4 balls at 2½*d.* each.

Exercise 46

A. Money; Division. B and C. Revision

ANSWERS

A

	(a)	(b)	(c)	(d)	(e)	(f)
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
1.	1 1	2 4	1 3	1 2	2 5	1 2
2.	6	6	7	7	9	9
3.	6	6	7	7	5	5
4.	1 6	1 4	1 3	1 7	1 9	1 11
5.	1 8	1 10	1 5	1 6	1 7	2 6
6.	1 3	1 8	2 6	11	9	3

B

1. 14
2. 25
3. 67
4. 6
5. 23
6. 34
7. 30
8. 54
9. 5
10. 9 (1 over)
11. 13 (1 over)
12. 2*s.* 3½*d.*
13. 1*s.* 7*d.*
14. 4*s.* 9*d*
15. 1*s.* 6*d.*

C

1. 15
2. 37
3. 91
4. 14
5. 35
6. 5 (1 over)
7. 21 (1 over)
8. 4*s.* 4*d.*
9. 1*s.* 8*d.*
10. 4*s.* 3*d.*
11. 1*s.* 8*d.*
12. 3*s.* 5*d.*
13. 3 ft. 3 in.
14. 45*d.*
15. 10*d.*

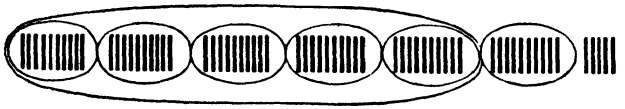
SIMPLE DIVISION

(Continued from page 44a)

Practical work and blackboard work to go hand in hand.

Bridging the ten. Example: 65 ÷ 5.

(*a*) *Practical* (*Sticks*).



1 five group of tens (50) 1 ten + 5 singles = 15 over.

15, regrouped in fives.

(*b*) *Blackboard Work.*

	t.	*u.*
5)	6	5
	1	3

(*a*) Share the *tens* first, as 6 tens ÷ 5 = 1 (1 ten over).

(*b*) Share the *units* next, as 15 ÷ 5 = 3.

Note: Great care must be taken over step (*a*), blackboard work. The 1 over is 1 ten (10). If this is not emphasized, there is the possibility of the children adding 1 unit to the 5 (6), instead of 1 ten (15).

Graded Exercises. DIVISION OF MONEY

1. 2*s.* 2*d.* ÷ 2. (Exact groups of shillings and pence.)
2. 1*s.* 6*d.* ÷ 6. (Table work, as 18*d.* ÷ 6.)
3. 3*s.* 0*d.* ÷ 2. (Changing a shilling to pence without addition of pence.)
4. 4*s.* 6*d.* ÷ 3. (As in 3, but with addition of pence.)

Exercise 47
Revision and Word Sums

A — First add; then subtract.

	(a)	(b)	(c)
1.	23 17	59 32	45 26
2.	56 39	72 27	55 35
3.	64 27	79 11	53 38
4.	37 × 2	46 × 2	24 × 4
5.	35 × 2	19 × 3	23 × 4
6.	27 × 3	19 × 5	16 × 6
7.	3 | 81	6 | 24	5 | 35
8.	4 | 96	5 | 75	6 | 96
9.	3 | 57	4 | 92	6 | 84
10.	4 | 86	6 | 75	5 | 81

B — First add; then subtract.

	(a)	(b)	(c)
	s. *d.*	*s.* *d.*	*s.* *d.*
1.	2 3 1 10	2 6 2 5	3 2 1 9
2.	3 2 9	2 5 1 7	2 7 1 8
3.	2 5 1 6	3 5 11	2 4 1 9
4.	1 6 × 2	1 7 × 3	1 8 × 3
5.	1 4 × 3	1 10 × 2	1 5 × 3
6.	2 2 × 2	1 3 × 4	1 9 × 2
7.	2 | 2 10	2 | 3 4	3 | 4 0
8.	2 | 3 0	2 | 3 10	2 | 5 0
9.	3 | 4 6	4 | 5 0	3 | 2 3
10.	5 | 2 6	6 | 4 0	3 | 4 9

11. 7 times 6 and then take away 20. From 4*s.* 6*d.* take 2*s.* 9*d.*
12. $(8 \times 2) + (6 \times 9) + (5 \times 5)$. Take 5*d.* from $11\frac{1}{2}d.$

WORD SUMS

13. How much is left out of 4*s.* 6*d.* after spending 2*s.* 9*d.*?
14. I write 4*s.* instead of 4*d.* How much am I wrong?
15. In a box are 1 florin, 5 sixpences and 1 threepence. How much money is there altogether?
16. From the total of 37 and 55 take 40.
17. Find the total cost of half a dozen eggs at 2*d.* each and $\frac{1}{2}$ lb. of butter at 1*s.* 8*d.* a lb.
18. How much money is needed to pay for 30 penny stamps and 10 halfpenny stamps?
19. I have 2*s.* 3*d.* left out of 5*s.* How much have I spent?
20. Share $4\frac{1}{2}$ dozen beads equally among 6 girls. How many for each one?

Exercise 47

Revision and Word Sums

ANSWERS

	A						B					
	Addition			Subtraction			Addition			Subtraction		
	(*a*)	(*b*)	(*c*)	(*a*)	(*b*)	(*c*)	(*a*)	(*b*)	(*c*)	(*a*)	(*b*)	(*c*)
							s. *d.*	*s.* *d.*	*s.* *d.*	*s.* *d.*	*s.* *d.*	*s.* *d.*
1.	40	91	71	6	27	19	4 1	4 11	4 11	5	1	1 5
2.	95	99	90	17	45	20	3 11	4 0	4 3	2 5	10	11
3.	91	90	91	37	68	15	3 11	4 4	4 1	11	2 6	7

	(*a*)	(*b*)	(*c*)	(*a*)	(*b*)	(*c*)
				s. *d.*	*s.* *d.*	*s.* *d.*
4.	74	92	96	3 0	4 9	5 0
5.	70	57	92	4 0	3 8	4 3
6.	81	95	96	4 4	5 0	3 6
7.	27	4	7	1 5	1 8	1 4
8.	24	15	16	1 6	1 11	2 6
9.	19	23	14	1 6	1 3	9
10.	21 (2 R)	12 (3 R)	16 (1 R)	6	8	1 7
11.	22			1*s.* 9*d.*		
12.	95			6½*d.*		

13. 1*s.* 9*d.* 14. 3*s.* 8*d.* 15. 4*s.* 9*d.* 16. 52.
17. 1*s.* 10*d.* 18. 2*s.* 11*d.* 19. 2*s.* 9*d.* 20. 9.

ORAL EXERCISES

Miscellaneous.

1. 1¼ lb. of bacon at 1*s.* 8*d.* a lb. (2*s.* 1*d.*) Change from 4*s.* (1*s.* 11*d.*)
2. 3 pairs of stockings cost 4*s.* 9*d.* How much per pair? (1*s.* 7*d.*)
3. 5 yards cost 4*s.* 7*d.* How much per yard? (11*d.*)
4. Spend 3*s.* 9*d.* out of 5*s.* How much left? (1*s.* 3*d.*)
5. I spend 2*s.* 6*d.* in threepenny pencils. How many do I buy? (10)
6. Half-way up 84 steps. How many steps up? (42)
7. A brick is 9 inches long. How far will 5 bricks stretch when placed end to end? (3 ft. 9 in.)
8. Bread is 5*d.* a loaf. Find the bread bill for a week, if one loaf is eaten each day (2*s.* 11*d.*)
9. Milk is 3½*d.* a pint. How much for 1½ quarts? (10½*d.*)
10. How many months in 6 years? (72)
11. How many days in 9 weeks? (63)
12. How many ounces in 1½ lb.? (24); in 1¼ lb.? (20); in 1¾ lb.? (28)

Exercise 48

Things to Do

1. Make a paper ruler, 12 inches long, to measure in inches, half-inches, and quarter inches. Use it to measure (*a*) the distance round your wrist; (*b*) round your ankle; (*c*) round a jam-jar.

2. Measure the distance across a halfpenny. As this distance is a very useful one, you should remember it.
3. Draw an oblong, making the long side 4 inches and the short side 3 inches. Join two opposite corners. This line is the diagonal of the oblong. Guess the length of the diagonal and then measure it to see if you are right.
4. Crease and fold your oblong along the diagonal. What figure have you made?
5. Cut along the diagonal. How many triangles have you? What part of the oblong is each triangle?

A_____B

6. If the line AB stands for:
   (*a*) 1 pound (16 ounces).
   (*b*) 1 foot.
   (*c*) 1 quart.
   (*d*) 60 minutes.

   Draw the line which stands for:
   (*a*) $\frac{1}{4}$ lb.
   (*b*) 1 yard.
   (*c*) 1 pint.
   (*d*) $\frac{1}{2}$ an hour.
7. Using your box of imitation coins, find (*a*) 3 coins which make up 1 shilling; (*b*) 3 coins which make up a florin (*c*) 3 coins which make up half a crown.
8. Using your box of imitation coins, find the following amounts: (*a*) 1*s.* 8*d.*; (*b*) 2*s.* 3*d.*; (*c*) 3*s.* $7\frac{1}{2}$*d.*
9. Make the following weights from plasticine: (*a*) 1 oz., (*b*) 2 oz., (*c*) $\frac{1}{4}$ lb., (*d*) $\frac{1}{2}$ lb. Test them; then use them to weigh different packets of sand. See how many different packets you can make by using your own weights.
10. Use the quart and pint measures to find how much water the bucket will hold.
11. Set the hands of the clock to show (*a*) a quarter past 3; (*b*) 10 minutes to 4; (*c*) half-past one.
12. Use the yard stick to find the length and width of the classroom.

Exercise 48

Things to Do

(Oral or Mental (written answers) as required.)

1. How many pints in 12 quarts? (24)
2. 2 quarts of milk at $3\frac{1}{2}d.$ a pint (1*s.* 2*d.*)
3. How many ounces in $1\frac{1}{2}$ lb.? (24)
4. How many days in 6 weeks? (42)
5. How many months in 4 years? (48)
6. 9 half-dozens. How many? (54)
7. How many half-crowns in 5*s.*? (2)
8. How many minutes in $\frac{1}{2}$ hour? (30); a quarter? (15)
9. How many ounces in $\frac{1}{2}$ lb.? (8); $\frac{1}{4}$ lb.? (4)
10. How many bundles of 10 can be made from 70 sticks? (7); 90? (9)
11. From 2 score of eggs take 2 dozen. How many left? (16)
12. A boy wrote the word " dozen " 12 times. How many letters did he write? (60)
13. How much are 7 sixpenny-pieces worth? (3*s.* 6*d.*)
14. One side of a square is 14 inches. How far all round — (*a*) inches; (*b*) ft. and in.? (56 in.; 4 ft. 8 in.)
15. How much change from a shilling after buying 2 lb. of apples at $3\frac{1}{2}d.$ a lb.? (5*d.*)
16. A boy wrote 3*s.* 4*d.* for 4*s.* 3*d.* How much was he wrong? (11*d.*)
17. Change from a florin after buying $\frac{1}{4}$ lb. of tea at 2*s.* 8*d.* a lb.? (1*s.* 4*d.*)
18. I spend 3*s.* in 3*d.* stamps. How many do I buy? (12)
19. Plant 95 rose trees in 5 rows. How many in each row? (19)
20. What must be added to 37 to make up the next ten? (3)
21. A man who has walked $4\frac{1}{2}$ miles is half-way there. How far is his journey? (9 miles)
22. $2\frac{1}{2}$ lb. tea at 2*s.* a lb. (5*s.*)
23. 3 yards cost 4*s.* 9*d.* How much for 1 yard? (1*s.* 7*d.*)
24. A fly has 6 legs. How many legs altogether have 13 flies? (78)

Exercise 49

Tests

A

1. 28 + 27 + 19
2. 63 − 29
3. 24 × 4
4. 5 | 86
5. 1*s.* 7*d.* + 1*s.* 8*d.* + 3½*d.*
6. 5*s.* 0*d.* − 2*s.* 3*d.*
7. 1*s.* 5*d.* × 3
8. 3 | 4*s.* 9*d.* *s.* *d.*
9. 3 stamps at 6*d.* =
   ½ doz. 2*d.* stamps =
   4 stamps at 1½*d.* = ____
   (*a*) Total ____
   (*b*) Change from 5*s.*
10. 6 oranges out of 6 dozen were bad. How many good?

B

1. 37 + 15 + 26
2. 72 − 18
3. 19 × 5
4. 4 | 97
5. 1*s.* 5*d.* + 1*s.* 9*d.* + 4½*d.*
6. 4*s.* 2*d.* − 2*s.* 8*d.*
7. 1*s.* 3*d.* × 4
8. 2 | 3*s.* 8*d.* *s.* *d.*
9. 2 toys at 1½*d.* each =
   1 doz. toys at 3*d.* each =
   ½ doz. toys at 2*d.* each = ____
   (*a*) Total ____
   (*b*) Change from 5*s.*
10. Share 39 sweets equally among 3 girls. How many are there for each girl?

C

1. 19 + 7 + 35
2. 71 − 19
3. 27 × 3
4. 4 | 58
5. 1*s.* 2*d.* + 9*d.* + 2*s.* 1½*d.*
6. 4*s.* 3*d.* − 1*s.* 9*d.*
7. 1*s.* 3*d.* × 4
8. 2 | 3*s.* 6*d.* *s.* *d.*
9. ½ lb. at 1*s.* 4*d.* a lb. =
   2 lb. at 8*d.* a lb. =
   ½ lb. at 1*s.* 2*d.* a lb. = ____
   (*a*) Total ____
   (*b*) Change from 5*s.*
10. A brick is 9 inches long. How far will 5 bricks stretch if put end to end?

D

1. 27 + 11 + 36
2. 91 − 74
3. 18 × 5
4. 3 | 85
5. 9½*d.* + 1*s.* 11*d.* + 1*s.* 11*d.*
6. 5*s.* 0*d.* − 1*s.* 3*d.*
7. 1*s.* 9*d.* × 2
8. 3 | 4*s.* 3*d.* *s.* *d.*
9. ½ lb. at 1*s.* 6*d.* a lb. =
   2 lb rice at 4½*d.* a lb. =
   ½ lb. bacon at 1*s.* 8*d.* a lb. = ____
   (*a*) Total ____
   (*b*) Change from 5*s.*
10. 75 marbles cost 5*d.* How many is that for 1*d.*?

Exercise 49

Tests

ANSWERS

	A	B	C	D
1.	74	78	61	74
2.	34	54	52	17
3.	96	95	81	90
4.	17 (1 over)	24 (1 over)	14 (2 over)	28 (1 over)
5.	3*s.* 6½*d.*	3*s.* 6½*d.*	4*s.* 0½*d.*	4*s.* 7½*d.*
6.	2*s.* 9*d.*	1*s.* 6*d.*	2*s.* 6*d.*	3*s.* 9*d.*
7.	4*s.* 3*d.*	5*s.*	5*s.*	3*s.* 6*d.*
8.	1*s.* 7*d.*	1*s.* 10*d.*	1*s.* 9*d.*	1*s.* 5*d.*
9.	(*a*) 3*s.*; (*b*) 2*s.*	(*a*) 4*s.* 3*d.*; (*b*) 9*d.*	(*a*) 2*s.* 7*d.*; (*b*) 2*s.* 5*d.*	(*a*) 2*s.* 4*d.*; (*b*) 2*s.* 8*d.*
10.	66	13	3 ft. 9 in.	15

DICTATED MECHANICAL TESTS

(Written answers)

	A	B	C
1.	15 + 7 (22)	18 + 9 (27)	7 + 15 (22)
2.	37 + 10 (47)	27 — 11 (16)	37 — 8 (29)
3.	47 — 9 (38)	5 × 5 (25)	12 × 5 (60)
4.	70 — 30 (40)	30 ÷ 6 (5)	35 ÷ 5 (7)
5.	9 × 5 (45)	10*d.* + 11*d.* (1*s.* 9*d.*)	7½*d.* + 1*s.* 1*d.* (1*s.* 8½*d.*)
6.	54 ÷ 9 (6)	Pence in 3*s.* 9*d.* (45*d.*)	3*s.* — 1*s.* 6*d.* (1*s.* 6*d.*)
7.	9*d.* + 8*d.* (1*s.* 5*d.*)	8*d.* × 4 (2*s.* 8*d.*)	9*d.* × 6*d.* (4*s.* 6*d.*)
8.	Pence in 3*s.* 4*d.* (40*d.*)	2*s.* 0*d.* ÷ 6 (4*d.*)	3*s.* ÷ 6 (6*d.*)
9.	7*d.* × 6 (3*s.* 6*d.*)	2*s.* 6*d.* ÷ 5 (6*d.*)	½ in. in 1 foot (24)
10.	2*s.* 0*d.* — 1*s.* 3*d.* (9*d.*)	½ lb. in 2½ lb. (5)	Pints in 7 qt. (14)

TEST IN WORD SUMS

1. A farmer had 19 sheep. He bought 20 more. How many had he then? (39)
2. Tom had in his money-box: 1 shilling, 2 sixpences, and 2 threepences. How much altogether? (2*s.* 6*d.*)
3. Buy meat for 1*s.* 10*d.* How much change from 2*s.* 6*d.* (8*d.*)
4. From 4 dozen take 2 score (8).
5. Bacon is 1*s.* 8*d.* a lb. Change from 1*s.* after buying ½ lb. (2*d.*)
6. 5 loaves at 9*d.* each (3*s.* 9*d.*)

Tables

TABLE SQUARE

1	2	3	4	5	6	7	8	9	10	11	12
2	4	6	8	10	12	14	16	18	20	22	24
3	6	9	12	15	18	21	24	27	30	33	36
4	8	12	16	20	24	28	32	36	40	44	48
5	10	15	20	25	30	35	40	45	50	55	60
6	12	18	24	30	36	42	48	54	60	66	72
7	14	21	28	35	42	49	56	63	70	77	84
8	16	24	32	40	48	56	64	72	80	88	96
9	18	27	36	45	54	63	72	81	90	99	108
10	20	30	40	50	60	70	80	90	100	110	120
11	22	33	44	55	66	77	88	99	110	121	132
12	24	36	48	60	72	84	96	108	120	132	144

PENCE OR INCHES												SHILLINGS OR FEET
1	2	3	4	5	6	7	8	9	10	11	12	1
13	14	15	16	17	18	19	20	21	22	23	24	2
25	26	27	28	29	30	31	32	33	34	35	36	3
37	38	39	40	41	42	43	44	45	46	47	48	4
49	50	51	52	53	54	55	56	57	58	59	60	5
61	62	63	64	65	66	67	68	69	70	71	72	6

I. MONEY

4 farthings = 1 penny (*d.*)
2 halfpennies = 1 penny (*d.*)
12 pence = 1 shilling (*s.*)

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1 half-crown = 2*s.* 6*d.*
1 florin = 2*s.*
1 shilling = 2 sixpences

II. LENGTH

12 inches (in.) = 1 foot (ft.)
3 feet = 1 yard (yd.)

III. CAPACITY

2 pints (pt.) = 1 quart (qt.)
4 quarts = 1 gallon (gall.)

IV. WEIGHT

1 pound (lb.) = 16 ounces (oz.)
½ pound = 8 ounces
¼ pound = 4 ounces

V. NUMBER

2 = 1 pair or brace
12 = 1 dozen
20 = 1 score