IBSTOCK PLACE SCHOOL

MATHEMATICS SYLLABUS

It must be born in mind that children are only able
to cope with the various processes of mechanical Arithmetic when
they have reached the necessary stage of logical thought in their
development, and this is a matter of individual growth rather
than of chronological age.

Understanding must precede manipulation of numbers.
If manipulation of numbers. If manipulation is taught before
understanding difficulty will be encountered by the children at
a later stage "Learning must be a genuine development of understanding,
not a mere parrot-like repetition of the sounds of the language
without adequate experience of its meaning." (Mathematical Association
Report)

The work of the teacher should be to arrange and
constantly re-arrange the environment, drawing attention to the
mathematical relationships embodied in the children's own activity
In such a prepared environment the children will assimilate
mathematical processes according to the stage of growth of their
own mental structures. (See Discussions on Child Development,
Geneva, 1953, Third Discussion - Criteria of the Stages of Mental
Development)

The following scheme gives only an approximate progression
of the average required standards. Processes need not be taught
in this order, but care should be taken to use numbers which are
simple enought to be real to the child, as the use of unrealistically
large numbers can obsure the process. Some children may not
reach the standard suggested for the form, others may go further.

Transition
6-7 years

Piaget's findings are of particular importance with this age group.
There is much emphasis on practical work and on the connection of
number with daily experiences rather than on learning written
processes.
Addition, sibstraction and multiplication of tens and units
(some children may be able to relate this in a practical way to
money, weights and measures.)
Simple division, again related to practical work.
Much practice in number combinations and in the learning of
multiplcation tables; 2, 3, 10, 5, 11, 4, 6.
Much oral work with 100 - how it is made up and importance of 10.
Connection of numbers with time, money, measure, weight.

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Form I
7-8 years

Simple problems in mental arithmetic using the four rules and in connection with individual interests and experience.
Multiplication tables up to 12 times.
Speed tests on this work, improving child's own record and not competitive.
Revision of simple work with three rules, written and practical.
Short division, closely linked with discovering further use of Table knowledge.
Work in the three rules with £.s.d. st.lb.oz., yd.ft.ins., days,hrs,mins, secs,, gals,qt.pts.pts. Still very closely connected with practical experiences, making records of findings. Where individual children have grasped the idea of conversion some work on Reduction of weights and measures may be introduced.
Bills, based on class activity e.g. shop etc.
Oral and practical work on easy fractions

Form II
8-9 years

Much practice in the four rules and the multiplication tables.
Short division in weights and measures.
Long multiplication.
Harder examples in reduction of money, weights and measures.
Problems in connection with all the work above.
Further work in fractions, still on a practical basis.
Tables to be learnt - st. lbs. ozs; ft. ins; days, hrs. mins. secs; gals. qts. pts.
Perimeters.
Dozensrule.
Arithmetical Dictation Books 1 and 2.

Form III
9-10 years

Much revision.
Examples of compound rules.
Fractions - $\frac{1}{2}$, $\frac{1}{4}$ 1/8, 1/6, 1/12, etc/
L.C.M. and factors.
Perimeters and areas.
Work on tables studied in previous year.
Long division.
Much work on problems (oral and written).
Speed tests.
Stress:- 1) Statements where necessary
          2) Show all working
Arithmetical Dictation Books 2 and 3.

Geometry
Elementary geometry - properties of figures (plane and solid), angles, parallel lines, plans to scale.
Geometry drawing using ruler, protractor, compasses and set square.
Geometrial constructions - bisecting lines and angles, triangles.

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Form Lower IV

Arithmetic

Long multiplication and long division £.s.d. and weights and measurers.

Revision.

Decimals, all four rules, and long division and multiplcation by whole numbers and decimals.

Expression of terms in decimal form.

Four rules in fractions.

Problems in proportion and unitary method.

More difficult problems in area.

Arithmetical Dictation Book 3.

Algebra

Use of letters.   Notation and subtraction.

Generalised arithmetic in addition and subtraction, powers, multiplication and division, squares and square roots, H.C.F.

L.C.M. and fractions.

Use and simpliciation of brackets with four rules.

Functions of a variable.

Work on negative numbers.

Simple equations and problems.

Geometry

Points, lines, surfaces and solids.   Practical and oral work.

Work on heights and distances.

Work on angles, figures, parallel lines and perpendiculars.

Symmetry.

Plans to scale,

Constructions of triangles and parallelograms.

Forms Upper IVB and UIVA
11-13 years

Arithmetic

Decimalisation of money, etc.

Rectangular and cylindrical volumes.

Percentage.

Simple interest.

Revision of work of former years.

Arithmetical Dictation Books 4 and 5.

Algebra

Much practice and revision of work of previous year.

Generalised arithmetic with unitary method, areas and volumes.

Simple equations.

Factors.

Problems.

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Geometry
Angles of a triangle and congruent triangles.
Parallelograms.
Revision of work done on angles at a point and on parallel
    straight lines.
Further work on constructions.
Area of a triangle and area of a parallelogram.

Books:-   Rightway Arithmetic
           Fundamental Arithmetic - Ballard
           School Mathematics - Parr
               and other books.

APPENDIX   Arithmetic Method

1.   Carrying figures remembered as far as possible but if
      necessary put down below answer line in next column.

2.   Subtraction - Equal additions

      1932   a)   5 from 2 you cannot so put up a 10.
        465-   5 from 10 is 5 and 2 more makes 7.
      _____   You gave 10 to the top line so you
                         must give 10 to the bottom.   Not 6 but 7.
                         7 from 3 you cannot so put up a 10 etc.
      £ s d
      1 2 2   b)   Sevenpence from twopence you cannot so put
         4 7-   up a shilling which is 12 pennies, etc.
      _____

      _____

3.   Multiplication a)   2572   by highgest number first
                            26x
                          _____
                          51440
                          15432
                          _____
                          66872

                    b)   Long multiplication - money, measure,
                            weight, etc.
                         Column method working under answer line.
                         £   s   d
                         5   2   7¼
                                               19 x
                         _____
                         97   9   5 3/4   4/19f
                          2   11   4   _____
                         95   38   133   4d r 3f
                        £97   20/49s   12/137d
                                   £2 r 9s   11s r 5d

4.   Short and long division setting down answer on top.
           9   No dots or crosses when 7 will not go into
      7/64315   6, but space left.

5.   Fractions   3 2/3 plus 4 3/4   8 plus 9
                     = 7 8/12 plus 4/12   or 7 _____
                                                   12

                     equals 7 17/12
                     equals 8 5/12

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