

**CONSTRUCTIVE WORK: ITS
RELATION TO NUMBER,
LITERATURE, HISTORY AND
NATURE WORK**

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Constructive Work: Its Relation to Number, Literature, History and Nature Work by Edward F. Worst & Harriette Barber & Mariane Seymour

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EDWARD F. WORST & HARRIETTE BARBER & MARIANE SEYMOUR

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CONSTRUCTIVE WORK

ITS RELATION TO NUMBER, LITERATURE,
HISTORY AND NATURE WORK

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INTRODUCTION.

The science of Number in the primary grades, until somewhat recently, has been much less useful as an educational agency than it should have been.

Consisting mainly of formal combinations of numbers, without apparent reasons for presenting them to the children, it has failed to give that high degree of mental discipline which, when properly presented, it is so well calculated to afford.

A new era has dawned upon the science of Number in the primary grades; a stepping stone to formal work has been discovered, so carefully graded that the child can follow it with interest and pleasure. Constructive number work, when properly taught, affords the finest mental discipline of any study in the primary grades. It gives quickness of perception, the power of concentration and an intellectual grasp that can be acquired in no other branch of study. The author has tried to make this work not only simple, progressive and practical, but has tried to adapt it to the wants of those who believe that constructive number should be taught in connection with the other branches of work. Great care has been taken to make all dictations so simple that the youngest child can follow them. The gradation of the work will be found one of the most distinctive and valuable features.

Pupils upon entering school are given only formal foldings. Gradually the work with the ruler is introduced, using inches at first and working into halves, quarters and eighths. A variety of dictations is given. In this manner tiresome monotony is avoided and the work is rendered in-

8
10/10/10

teresting and attractive. Teachers will find many combinations of numbers in every dictation. The questions given in the first dictations are only suggestive of what may be brought out by the teacher.

The object of this work is to teach the child to think as well as make; to develop mind as well as ability to construct.

It is hoped this work may aid teachers in their arduous labors and become a favorite with the little children of our common schools.

I have been greatly aided in carrying out the details of this plan of work by Miss Harriett Barber and Miss Marian Seymour, primary teachers in Yale Practice School, Chicago Normal.

The work on the hygrometer was arranged by Mr. Jackman several years ago, and is used in this book with his permission.



FOLDED SERIES OF MODELS.

In this series of models we have given twenty exercises in folding. This number may be greatly increased by adding to the five simple formal foldings.

It will be observed that in all the folding exercises squares or oblongs of the desired size are placed into the hands of the children, thus avoiding at first any measuring on their part.

The object of these exercises is not only to give the child the manual training and the thought that he must work accurately, but to familiarize him with the terms right and left, and to give him repeated drill in the counting to sixteen, not only counting, but in short give him as many of the combinations to sixteen as possible.

For illustration of the number work see exercises 1 and 3.

In all this folded series the teacher works before the pupils, each step being taken at the time the dictation is given.

The only material necessary for this work is paper, a pair of scissors, paste and a splint used as a brush for pasting.

Gum tragacanth, which may be purchased at any drug-store, makes a very cheap and good paste for a light quality of paper. Use a teaspoonful to a half cup of water. Allow it to soak from eight to ten hours before using.

A good flour paste for heavier paper is made by boiling the flour and adding just a little glue and alum.

EXERCISE I

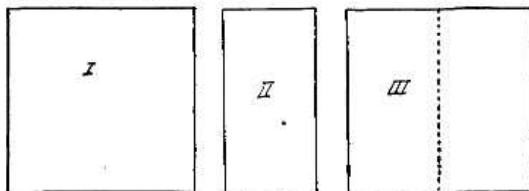
Square Seed Box.

Made in connection with nature study.

Material: Six inch square of paper.

Dictation: Hold your paper up in front of you. What shape is it? How many corners has it? What kind of corners? (Square.) Find the two upper corners; the right upper corner; the left upper corner.

Find the two lower corners; the right lower corner; the left lower corner.



How many edges has the square? What can you say of their length? Find the upper edge; lower; left; right. Hold the square by right and left edges.

Fold paper so these edges exactly meet. Crease. What is the shape of your paper (II.)? How many corners has it? What kind of corners? How many sides? Are the sides of the oblong equal? Open the paper (III.).

How many oblongs are there in the opened paper? What part of the square is each oblong? Find the crease made by folding. Fold the right edge of the paper over to the crease; the left edge. Unfold the paper. How many oblongs are there now (IV.)?

What part of the square is each oblong?

Hold the paper so the creases run from right to left. Repeat previous dictation. Unfold. Into what is the paper divided (V.)?

How many squares?

How many rows of squares? How many squares in a row?

Find the upper right square. Cut along its lower edge with the scissors (a). Cut along lower edge of upper left square. Find lower right square. Cut along its upper edge. Cut along upper edge of lower left square.

Fold into box form and paste corner squares on the inside.

Repeat this exercise and use second box for a cover of first. Cut a triangular piece out of right and left sides, thus allowing places where the box may be held while removing the cover.

EXERCISE II.

Seed Envelopes.

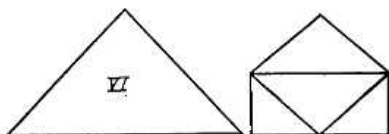
Made in connection with nature study.

Material: Nine inch square of paper.

Dictation: Hold paper by two opposite corners. Fold these corners together (VI.). Hold triangle by two sharp corners with square corner pointing upward. By

folding sharp corners together find center of lower edge. Fold right corner to center; left. Paste.

Separate square corners. Turn inner square corner downward to center of lower edge. Crease. Paste.



EXERCISE III.

Table.

Made in connection with the story of the Three Bears.

Material: Paper 9 inches by 6.

Dictation: Hold paper with long edges at right and left. Fold right and left edges together. Of what shape is it? (Oblong). How many corners has it? What kind of cor-



ners? (Square). Unfold. Each oblong is what part of the whole piece? Fold right edge to middle crease. Unfold. How many oblongs are there now? How many more in right half than left? Fold left edge to middle crease. Unfold. How many oblongs in all?

Hold paper with short edges at right and left. Fold right and left edges together. How many oblongs do you see? How many do you think are on the other side? Unfold and count the number of oblongs in all.

Fold right edge to crease. Unfold. How many oblongs in right half? How many in a row? How many in the two rows? How many more in right half than in the left?