

**OBJECT LESSONS IN  
ELEMENTARY SCIENCE:  
FOLLOWING THE SCHEME  
ISSUED BY THE LONDON SCHOOL  
BOARD**

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Object Lessons in Elementary Science: Following the Scheme Issued by the London School Board by Vincent T. Murché

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IN  
**ELEMENTARY SCIENCE**

FOLLOWING THE SCHEME ISSUED BY THE  
LONDON SCHOOL BOARD

DEPARTMENT OF EDUCATION  
**LELAND STANFORD JUNIOR UNIVERSITY**

BY

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## PREFACE

SOME years ago the London School Board issued a Scheme of Object Teaching in Elementary Science. This Scheme was at once adopted by the compiler of these Lessons for use in his own school. He started by writing complete Notes of the Lessons, based on the Scheme, for each section of the school; and has exercised much care and thought in getting together a museum of suitable objects for illustrating the teaching.

The result has been a marked success—the teachers as well as the children deriving pleasure and benefit, and looking forward to the lessons as a welcome break in the monotony of the school routine.

H.M. Inspector has always shown his commendation of the work; and in July last he brought the Right Hon. A. H. D. Acland, the Vice-President of the Council, on a visit to the school for the purpose of witnessing the teaching in this subject.

The Vice-President spent about an hour and a half with the various classes, showed great interest in the work, examined the books of written lessons, and himself suggested the advisability of publishing them. Hence they now appear in book form.

A special point in the arrangement of the Lessons is that they are all written in full, no single step being left unexplained. The pupil-teachers can therefore be allowed to take their share of the work, to their own benefit and improvement, without loss to the children.

The instructions to the teachers are printed in italics, the salient points of the lesson are conspicuously shown in the change of type, and lists of suitable objects for illustrating each lesson are placed at the end of the book.

As the books are intended for the teacher and not for the class, there is no need for copious illustration. The plates at the end are intended for reproduction as black-board sketches, and generally for the guidance of the teacher. The teacher will reproduce on the black-board as much as he can of each sketch, according to his individual skill with the chalk.

The universal complaint from Inspectors in all parts of the country has been that the so-called "Object Lessons" too often fail in their purpose, because nothing is so conspicuous as the absence of the objects themselves. The main purpose throughout this course has been never to use a picture where the real object can (with a little trouble) be obtained; and the Author has found, and still finds, that the teachers as well as the children take a lively interest in adding to the stock of articles in the school museum.

The various stages are written up to the possibilities of a school of good repute, well appointed and staffed. In schools not so fortunately placed, a rearrangement of the



Standards might be made—Standards I. and II. taking the course prescribed here for Standard I., and so on.

In smaller schools, and girls' schools, the lessons dealing with Animal and Plant Life alone would make an interesting and useful course; or the lessons on Common Objects (Standards I.-III.) might be followed in the higher Standards by the course in Mechanics, Botany, Zoology, or Chemistry, at the teacher's pleasure.

*The complete course covers almost the entire ground of alternative subjects prescribed by the Code of 1894.*

The Author begs to acknowledge his indebtedness to Mr. Rick's admirable book, *Object Lessons and How to Teach Them*; also to *The Chemistry of Common Life*; *Animal Products*; *Strength of Materials and Structures*; *Dictionary of Manufactures*; and for trade statistics to the researches of friends.



# SCHEMES OF LESSONS

## STANDARD I

### I. LESSONS FROM COMMON OBJECTS

#### 1. Plastic substances.

**Clay.**—Its chief physical properties ; changes produced by baking. Its uses for modelling and for making bricks, tiles, drain-pipes, pottery, etc.

**Putty.**—Made of crushed chalk and linseed-oil. Why linseed-oil. Its uses to be illustrated.

**Gutta percha.**—Comparison of properties when cold and when warmed in hot water. Articles made of gutta percha.

These lessons to be illustrated with prepared clay, putty, and gutta percha, which are to be placed in the hands of the children for test and experiment.

#### 2. Soluble substances.—Meaning of soluble.

**Sugar.**—Its chief physical properties.

**Rock-salt.**—Its chief physical properties.

These substances to be placed in the hands of the children for examination and comparison.

Show, by means of the evaporating dish, how sugar can be recovered from the water which holds it in solution ; and how table-salt is prepared from sea-water, and from brine springs.

#### 3. Some substances which burn.

**Coal.**—Its physical properties and uses. Heated in a closed vessel gives off gas, which will burn, but which we cannot see. Illustrate with coal-dust in a clay pipe. Compare with other bodies which will burn, such as sulphur, wood, cork, and india-rubber, and illustrate in each case. Show also that animal