

**MANUALS OF THE SCIENCE AND  
ART OF TEACHING. ADVANCED  
SERIES, NO.VIII. HOW TO TEACH  
DOMESTIC ECONOMY**

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Manuals of the Science and Art of Teaching

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ADVANCED SERIES, No. VIII.

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## HOW TO TEACH DOMESTIC ECONOMY

SECOND BRANCH

*(FOOD, ITS COMPOSITION, FUNCTIONS  
AND PREPARATION)*



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*The wide circulation of the National Society's Manuals on the 'Science and Art of Teaching' has induced the Literature Committee to undertake another series of Manuals on more advanced subjects, which they trust will be useful not only to Teachers in Elementary Schools and Students in Training, for whom they are primarily intended, but also to Teachers in Secondary and Higher Grade Schools.*

*The Manuals of the present series—like those which have preceded it—have been written by men of distinguished reputation in their various subjects, and who have had large experience as teachers and examiners. They include all the subjects in Schedule 4 of the Education Code, with the exception of Mathematics, which is fully treated in the 'Pupil Teachers' Course of Mathematics,' published by the Society. The Manual on Teaching Languages has been planned to comprehend the teaching of German and French as well as Latin. In addition to the subjects under Schedule 4, the present series includes a Manual on the Training of Pupil Teachers, by a very successful Lecturer on Method in one of the larger Training Colleges.*

*In order to obtain greater clearness and precision, each subject has been treated independently, and is complete in itself.*

# DOMESTIC ECONOMY.

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## *SECOND BRANCH.*

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### CHAPTER I.

#### THE COMPOSITION OF FOOD.

**The subject generally.**—The Code now recognises, and very wisely, the importance of instruction on the subject of the composition, nutritive value, functions, and proper preparation of food, by making these points a separate division of Domestic Economy, and requiring their study to be a necessary part of every girl's course of that branch of knowledge.

In all specially girls' schools, there will be no practical difficulty in the fulfilment of the Government conditions. Every pupil taking up Domestic Economy at all will be taught and examined in both branches. Nor will there be any difficulty, though there will be disadvantage, in the case of schools for boys only. They will be instructed in the first branch only of Domestic Economy, and the second will be omitted, though very greatly to their loss. For widely useful though the first branch be in teaching them many matters essential to their home comfort, health, and well-being, there can be no question that these things cannot be

sought and gained in any true fulness without knowledge also on the subject of food, on the fitness, the supply, and the preparation of which so very much depends.

**The subject should be taught to boys as well as girls.**—But in the case of a mixed school another difficulty arises. Boys who are taught Domestic Economy need not, while girls must, take up the second branch ; the effect of which distinction would probably be to complicate the time-table, or to discourage the study of the subject altogether. Is there any remedy for this? I think so. Make every part of the subject, in both branches, a matter of instruction *to boys and girls alike*. Let the boys as well as the girls know something of the nature, functions, and even preparation of food ; there will be no inequality in their instruction, no trouble in separate teaching, and, as a result, when they grow up and marry, there will be, as a consequence of the fuller teaching, two chances, instead of one, in every household for the putting into wholesome practice those essential principles of health and comfort which can only be fitly inculcated by lessons upon food as well as on all other points of Domestic Economy.

Therefore have no fear or hesitation about teaching the whole subject, in both its branches, to boys as well as girls. There are but few schools in which the preparation of food can be really *practically* taught ; and where it is, such a handbook as Mrs. Buckton's 'Food and Home Cookery' will be both valuable and necessary. The *principles*, however, of food preparation are as valuable for boys as for girls, and the former can never be injured by even a considerable knowledge of its practice.

**Definition of food.**—In its widest sense you may teach your class that everything which tends to sustain life is food ; and from this they may gather that food can only be consumed by living things. But you must at once limit



your sense of the term. Show them, if you will, that besides men, beasts, and insects, plants of every sort are living things, and so far under the same conditions with animals as to need food for existence as well as for growth; but then remove these from your sense of the term as applied to our present study, by limiting your meaning to *the food of man*. Thus you may make them see that *the food of man means everything the consumption of which tends to keep human beings alive*.

**What is food for?**—This, in other words, is the same thing as asking what the functions of food are, which, according to the arrangement of the Code, is relegated to the second year's study of the food subject, and will be treated further on in this manual. But you cannot approach the question of what food is made of (that is, its composition and nutritive value), without giving your class a clear notion of what it is meant to do; since it is plain that we cannot define what is food and what is not without some general notion of the proper function which gives it a claim to be called a food at all.

You must therefore so far encroach upon the later teaching as to show your pupils (as you may, by various simple illustrations) the facts—

Firstly, that a body wears out, and needs supply.

Secondly, that a body grows, and needs substance.

Thirdly, that a body must keep up a certain temperature, and needs fuel; and,

Fourthly, that a body works, and needs power, force or strength.

**Stress to be laid on these points.**—You cannot take too much trouble in making the children understand this matter thoroughly. For a right sense of this is the foundation of the whole philosophy of food. Give them abundant illustrations of it in every form. As to waste and replacement, show how use

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wears out their slate-pencils, which must in time be replaced ; how their clothes wear out and must be patched and mended ; how houses wear out and have to be replaced by new ones. As to growth and supply you can illustrate these by making them think of the growth (in spite of constant cutting and trimming) of the hair and nails ; that this growth seems unceasing, and yet must be supplied from some source or other. As to temperature and fuel, you have the familiar examples of fire, lamp, and candle ; and as to work and power, you have the whole range of illustration from the boiling kettle to the steam-engine at your command to give examples of your meaning. Nor need you be content with these ; a multitude of other simple illustrations will occur to your mind, which you will really find it worth while to note down in a pocket-book for reference in your preparation and for use in your teaching.

**The necessary elements of food.**—In the widest sense the food of man may be said to be compounded of substances of two sorts, *carbonaceous* and *nitrogenous*—fuel-forming and flesh-forming. See that every child in your class (not just the one or two most attentive ones) is clear about these two words. You may help their memory by writing on the black-board the derivation of *carbonaceous*, the Latin *carbo*, a coal. [Cf. *carbon*, i.e. charcoal.] This will associate the notion of *fuel* with the word in the children's minds. Make them understand clearly that all food is made up of these principles ; but show them that some substances may contain both principles, and others only one. For example, there is no nitrogen, or flesh-forming principle, in dripping, lard, butter, treacle, or sugar. Let them learn further that though some of our foods contain no nitrogen, all of them contain some carbon.

**Exercises on above.**—Write on a black-board the names of some commonly used articles of diet, with their relative contents of carbon and nitrogen. These can be ex-

tracted from the table of Food Constituents on page 83 of Bartley's 'Domestic Economy'; we should print some here, but that we wish you to give many of these exercises to your class, varying some of the foods named on your black-board from time to time. Now make the children understand that *about twenty times more fuel-food is wanted than flesh-forming food*, and let them write down in their books or on slates (the former is preferable, as they may take the books home, and talk on the subject to their parents) their opinion as to the relative feeding value of the different foods cited.

Suppose you give them the following:—

Food	Grms. of carbon per lb.	Grms. of nitrogen per lb.
Indian meal contains . . . . .	3,016	120
Sugar . . . . .	2,955	0
Beef . . . . .	1,854	189
Oatmeal . . . . .	2,831	136

and ask them (either in the class, or as a home lesson) to find out for you how much excess or deficiency of nitrogen each of these different foods contains. Make them work the proportion of nitrogen required by the carbon to make it into perfect food. If the proportion of 1 to 20 be borne in mind, they can easily add in a third column with + or - sign the proper quantity, thus:—

Food	Grms. of carbon	Grms. of nitrogen	Pro-portion	Difference of nitrogen grs.
Indian meal contains . . . . .	3,016	120	150 -	30
Sugar . . . . .	2,955	0	150 -	150
Beef . . . . .	1,854	189	92 +	97
Oatmeal . . . . .	2,831	136	141 -	5

Let them work many examples of this kind, till they are as familiar with the process of finding out the excess or deficiency of nitrogen in any food as they are with working the rule of three. This will make it easy for them to work two other sets of exercises, one on the *comparative values* and the other on the *best combinations* of foods.