

NUTRITION AND HEALTH

With Twenty
Suggested Lessons
for NUTRITION
CLASSES

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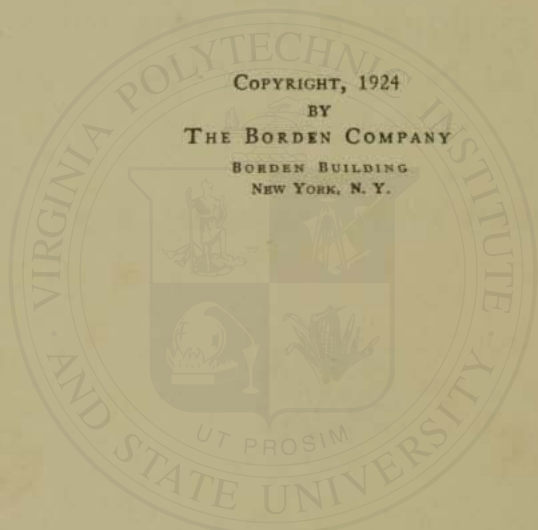
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PREFACE

MALNUTRITION among children has at last begun to attract widespread interest and attention. A variety of agencies have allied to combat it; articles concerning it are appearing frequently in the press and in popular magazines as well as in medical and educational journals. Health organizations, teachers, nurses and nutrition workers are attacking this problem in earnest. They have already accomplished a great deal toward advancing child health; thousands of children have benefited by their efforts.

In very recent years this movement for promoting better health among children has spread into commercial fields. Business organizations have established health and welfare departments with trained workers on their staffs.

These departments give free service throughout the country to mothers and children who desire authoritative health information. They offer valuable assistance to teachers and nutrition workers who wish to organize health programs by supplying them with literature, posters and materials which can be used to advantage in class work.

The commercial organizations which maintain such health departments are naturally interested in increasing sales of their products. At the same time many of them carry on this health work, not only for the sake of its advertising value, but because of a very genuine desire to promote better health among children.

Believing that he profits most who serves best and that in undertaking this work we were rendering a needful and beneficial service, the Borden Company with its Nutrition Department has taken an active leadership in this movement for improving child health. In fact, it is the Borden Company's commercial position as leader in the milk industry which makes it possible to carry on the work in a really big way. With greater interest in child health and more widespread knowledge of malnutrition and how to overcome it

will come an increase in the consumption of milk, *which is the child's basic food*, but also, what is most to be desired from a public viewpoint, a corresponding decrease in malnutrition among the children of our land. Realizing the alarming prevalence of malnutrition in the United States and its evil consequences, the Borden Company devoted more than two years to scientific research in an effort to discover the best means of overcoming this condition.

During this time it had over 1,000 malnourished school children under its observation, in various representative sections of the country. Careful authoritative experiments were conducted and valuable information gathered.

A description of these experiments and their results is published in detail elsewhere in this booklet. (See pages 20 to 24 inclusive.)

These experiments proved conclusively that malnutrition *can* be overcome or prevented if dealt with intelligently and consistently.

They also convinced the Borden Company that it had a real health food to offer the malnourished children of the world. For the results showed that malnutrition is effectively overcome in time by proper food, the strict observance of certain fundamental health rules, and the regular addition of Borden's Eagle Brand Condensed Milk to children's daily diet.

In order that the knowledge gained from this thorough study of malnutrition might be available to parents, teachers, health workers and all others responsible for the welfare of children, the Borden Company has summarized the information in the present booklet which is intended as a practical handbook on malnutrition. It explains in simple, direct terms the most important facts concerning the nature, extent, causes, effects and treatment of this condition.

In addition, it contains complete information for teachers, nurses and health workers for carrying on health and nutrition classes. A set of twenty lessons for such classes has been worked out in careful detail, which can be used as a guide by anyone wishing to organize a health program among children.

While this booklet—especially the section on “20 Suggested Lessons for Nutrition Classes”—is intended primarily for the

benefit of teachers, nurses and health workers, it will also be of inestimable help to mothers.

Additional information on the same subject has also been published by the Borden Company in the following set of booklets, which are intended to give mothers, and others who may be interested, complete working material in dealing with the problems of child nutrition.

"Keeping Your Child Fit"—a booklet explaining in simple, non-technical language the dangers of malnutrition, what it is, how to recognize it and the means of overcoming it.

"Menus for Little People"—a booklet showing how to plan balanced menus for children between the ages of two and six, and giving a sample menu for every day of the week.

"The Adolescent Girl—Her Book"—a booklet for the girl between eleven and fifteen years of age, which encourages her to observe good health and food habits during this period.

"Milkarpie Magic"—a collection of children's stories originated to stimulate child interest in the drinking of milk.

Health Records, to be used by the child and to encourage good health and food habits.

Height and weight charts which give correct weight for children in relation to height and age.

All this literature is available to mothers and also to any teachers and health workers who write for it.

Through the courtesy of thirty well known commercial companies, educational material on the health subjects mentioned in the present booklet, will be sent to teachers and health workers who request such literature from the respective companies.

It is with pleasure that the Borden Company places this additional helpful material in the hands of those who are directly interested in promoting better child health in this country.

MALNUTRITION

What is Malnutrition?

Malnutrition is not a disease. It is a lowered physical and mental condition of the body, brought about by faulty or inadequate diet and bad health habits.

It is essential that a child's food contain such vital elements as will give the body the best possible material with which to work. At the same time the body must be in the best of condition in order to receive the entire benefit from the foods eaten.

The lack of either or both of these conditions necessary for normal growth may result in malnutrition.

Extent of Malnutrition

It is estimated on reliable authority that there are 6,000,000 children in our country suffering from malnutrition. In other words, more than one third of our children of school age are below normal physically and mentally.

This condition of undernourishment is not confined to people who have no money. As a matter of fact the greatest proportion of malnourished children occurs among families of average means.

Causes of Malnutrition

The most important thing to consider in connection with malnutrition is the question of its cause.

There are numerous causes of this condition, of which the following are the major causes:

1. Insufficient food.
2. Unsuitable food.
3. Improper cooking.
4. Faulty food habits.
5. Disorders in digestive tract.
6. Faulty assimilation.
7. Bad posture.
8. Diseased organs.
9. Over-fatigue.
10. Faulty health habits.

There are in addition to these specific causes certain underlying causes of malnutrition, such as

1. Poverty.
2. Ignorance.
3. Lack of parental control (bad home influence).

How to Recognize Malnutrition

Malnutrition can be recognized by a number of signs and symptoms.

A malnourished child is, in the first place, always underweight. Consult a weight chart and you can discover a child's physical condition very quickly, for the relation of height to weight and age is the most reliable index to his health.

An underweight condition, pale or sallow skin, soft flabby flesh, undeveloped muscles, dark circles under the eyes, lustreless hair, and dull lifeless eyes are all physical symptoms of malnutrition.

The malnourished child is apt to be listless and disinclined either to work or play. He generally tires easily, and is often regarded as lazy. He is likely to lack mental vigor also, having little power of concentration and attention and less than the normal amount of curiosity and mental alertness. In disposition he may be nervous, restless, fidgety, irritable and extremely finicky about food.

Malnourished children may exhibit one or several of these symptoms, depending on the degree of undernourishment.

Effects of Malnutrition

The effects of malnutrition are far reaching and are shown both in the physical and mental development of the child.

Physical Effects

The immediate results of malnutrition, as has already been pointed out, are retarded growth, anemia, nervousness, irritability and lack of energy. The permanent effects are even more serious. The malnourished child, because of his low

vitality and poorly developed body, is very likely to grow up to be less efficient than a well nourished child and unfit to assume the full responsibilities of a good citizen.

The malnourished child is moreover a magnet for disease. Doctors state that the diseases to which people are subject—especially those to which children are subject—are most likely to attack undernourished children first. Children suffering from malnutrition lack resistance. They not only succumb more easily to diseases but they generally have more serious cases and recover with greater difficulty.

Mental Effects

There is a close relation between malnutrition and mental development. Malnourished children are almost always mentally retarded. The explanation is simple. A brain which is not getting sufficient or proper food cannot function normally any more than a starved body. Both need to be generously nourished in order to be vigorous and healthy.

In view of these evil consequences it is imperative that malnutrition be overcome in order to safeguard the physical and mental welfare of the nation.

How to Overcome Malnutrition

Fortunately, malnutrition *can* be overcome or prevented if dealt with intelligently and consistently.

The first step in the treatment of malnutrition is to discover the cause in order that it may be removed.

I. Correction of Physical Defects

A malnourished child should have a thorough physical examination to determine whether there are any physical defects which are the direct cause of this condition. Every child should have a thorough physical examination yearly. Enlarged or diseased tonsils should be taken out; bad teeth should be filled or extracted, and all other organic defects removed.

A child may receive good care, live in a happy environment, eat nourishing foods, and still be malnourished. This is due to the fact that the body is not in a condition to assimilate the food which would normally bring about an improvement in health.

Teachers and health workers should if possible see that each child for whom they are responsible is given a complete medical, physical and dental examination.

2. *Good Home Environment*

Malnutrition can often be traced to bad conditions in the home. In order to be normally healthy and happy a child must be surrounded by a good home environment. The home should be a place of happiness and encouragement, not a place of fear and repression. Happiness has an amazing value in promoting good health and should always be kept in mind when dealing with children.

Health workers who visit children's homes and come into direct contact with the mothers and families have an unusual opportunity to observe home conditions and make an effort to improve them.

If poverty is a determining factor it will probably be necessary to enlist the aid of relief agencies. The trouble may be due to ignorance on the part of parents, which calls for instruction by the teacher or health worker in the rules of healthful living.

Teachers can probably point out at mothers' meetings what an important factor good home environment is in overcoming malnutrition.

3. *Good Health Habits*

Such fundamentals as rest, fresh air, bathing and proper clothing are very important in helping to bring the malnourished child up to normal.

The following health rules should be taught to every child as essential for his health and happiness.

1. Live as much as possible in the fresh air.
2. Wear light, loose, porous clothes.

MALNUTRITION

3. Always sleep in fresh air. Have windows open.
4. Breathe deeply, filling the lungs with pure fresh air.
5. Have a bowel movement every day, preferably in the morning just after breakfast.
6. Always stand, sit and walk erect.
7. Keep your body clean by bathing frequently, and wear clean clothes.
8. Avoid contagious diseases.
9. Brush your teeth regularly.
10. Exercise out of doors.
11. Rest during the day.
12. Never worry.
13. Always try to be happy and spread this happiness to others.

Many times health habits can be made interesting to children by appealing to their play instinct. Have them check up each day the number of health habits they have exercised and see how many more one child can practice than another. Competitive games are always stimulating.

4. *Good Food Habits*

Diet is an all-important factor in overcoming malnutrition. The kind and the amount of food a child eats, and the habits which govern the taking of such food, are vital matters.

To be well nourished a child's food should furnish growing material, such as protein, which is a flesh and muscle builder and an energy producer; fat and carbohydrate, energy producers; ash for bone building; and vitamins, which are the growth stimulators and regulators.

Such growing materials are found in the growing foods—milk, eggs, fish, meat, cereals and other grain products, vegetables and fruits.

THE RIGHT FOODS FOR YOUNG CHILDREN

A child's meal should never be selected from one or two articles; a variety of foods is needed to furnish all kinds of growing materials and also to avoid monotony. A child's diet should include some of each of the following types of food every day.

Milk

Milk is the most important and the most perfect food we have for growing children. There is no substitute for it. It is a good fuel because it contains fat and sugar. The body needs such fuel to keep it warm and to make it move and work and play, just as the steam engine needs coal or the automobile needs gasoline.

Milk also contains substances which repair waste, help growth and build flesh and bone.

It is important to know where one's milk supply comes from and how it is inspected. Ordinary milk is frequently unreliable as to cleanliness and quality. Diluted condensed milk or dried milk has been used very successfully in the diets of children.

At least a pint of milk a day (not more than a quart) should be included in the daily diet of every child. When a child dislikes to drink milk alone, he should be given his share in the form of cocoa, custards, milk soups, creamed dishes, etc.

Eggs, Fish, Meat

If plenty of milk and an egg a day are selected for the diet of the child, very little meat should be given before the seventh year. The broths from stews may be given with crackers or bread or served on vegetables.

Cereals and Other Grain Products

These foodstuffs should supply at least one-third of the food

requirements of a child. Cereals and flours containing the outside of the grain—such as graham, whole wheat, unpolished rice—are more nourishing than the refined cereals and flours because they contain special life-giving factors called vitamins. They also help to prevent constipation.

If children do not like cereals it is usually because the cereals have not been properly cooked. Cereals when prepared at home should be cooked for at least three hours over boiling water, or in a fireless cooker. This thorough cooking makes the starch more digestible.

Vegetables

Vegetables are a very important factor in the diet. They are essential in guarding against constipation. Potatoes should be given practically every day in some form, such as baked, boiled or mashed. Other valuable vegetables are peas and beans, spinach, string beans, squash, celery, asparagus, carrots and beets, either fresh, dried or canned. Green vegetables are particularly rich in iron and also in vitamins.

Fruit

A child should have some fruit in the diet every day. Where fresh fruit is not possible dried fruits may be used. Dried fruits have a rich iron content. Fresh fruit should be given only in season. All fruits should be wiped off with a damp cloth before being eaten.

Sweets

Sweets should never be given between meals (except in the 10 o'clock lunch suggested in the menu list). They should be given in foodstuffs such as cocoa, puddings, custards, fruits, etc., or at the end of a meal.

Further detailed discussion of a child's food requirements, including sample menus and tables of calorific values for everyday foods, will be found in the appendix, pages 72 and 73.

YOUR PART IN FIGHTING MALNUTRITION

Herbert Hoover says, "If we could grapple with the whole child situation for one generation, our public health, our economic efficiency, the moral character, sanity and stability of our people would advance three generations."

This grappling with the lives and health of children is a tremendous responsibility. All mothers and fathers do not meet this responsibility, and therefore teachers, health workers and nurses become more or less accountable for the normal development of the younger generation.

Well known educational authorities claim that teachers have as a matter of fact a greater influence on the lives of children than the children's own parents. Children—and parents too—look to their teachers for help.

Because of the strategic position they occupy teachers have an unusual opportunity to govern the physical as well as the mental development of the children with whom they come in contact. By so doing they can at the same time help to overcome the serious problem of dealing with retarded and backward children in school.

Health workers and nurses are also in an advantageous position to combat malnutrition, since they are constantly in contact with a number of children, either in the children's own homes, or in clinics, day nurseries, settlement houses or other places where children are gathered together. In addition, they can do a great deal in the way of instructing parents in the rules of child health.

One of the most direct and effective ways in which teachers and health workers can deal with malnutrition is to start health and nutrition classes among children.

In order to bring the necessary information for starting such classes within reach of every teacher and health worker, the Borden Company has worked out a health program in careful detail which can be used as a practical guide by anyone wishing to carry on this work.

FIGHTING MALNUTRITION

This material, which is the same as that which the nutrition workers of the Borden Company used in their work among malnourished children, is published in full on pages 33 to 71, inclusive, under the heading "20 Suggested Lessons for Nutrition Classes."

Hot School Lunches

One of the greatest opportunities which the school has for improving the health of its children is the school lunch. These lunches are already being widely introduced throughout the country.

One type of school lunch is the light mid-morning lunch which is meant to supplement the scanty breakfasts which so many children have and to provide extra nourishment necessary to make underweight children gain as they should.

The other type is the hot midday lunch which is intended to take the place of a meal at home.

The children pay for their lunches for the most part, but provision is made for those who are unable to do so.

Both types of lunch have done a great deal toward improving the physical condition of school children.

Health authorities agree that malnourished children can use food given in four small meals much better than if the same amount of food is given in three meals.

Sample Hot Lunch Menus

I

Lamb Stew with Carrots and Potatoes
*Oatmeal Bread
Baked Apple
Hot Drink (Cocoa or Postum) or Milk

II

Split Pea Soup
Graham Muffin
Spinach
Tapioca Custard
Hot Drink (Cocoa or Postum) or Milk

III

Creamed Eggs on Toast
Green Peas
Whole Wheat Bread
Stewed Plums
Hot Drink (Cocoa or Postum) or Milk

IV

Baked Halibut
Boiled Potato
Stewed Tomatoes
Raisin Bread and Jelly
Hot Drink (Cocoa or Postum) or Milk

*Recipe for Oatmeal Bread, together with other recipes may be found in "Menus For Little People," a Borden publication.

EXPERIMENTS IN MALNUTRITION

Scientific experiments which have been conducted in the field of malnutrition and the experiences of well known authorities all demonstrate the value of condensed milk in the treatment of malnourished children.

The following statements and reports on the subject are offered as typical illustrations.

The experiences of the Near East Relief in restoring health and strength to the half starved people in famine stricken Europe is summed up in the following extract taken from a letter written by Dr. John Curran, Associate Director of the Near East Relief Committee.

"Our experience with 115,000 orphan children of the Near East shows that there is no more valuable food than condensed milk for restoring half starved children to health and strength. Our overseas workers report that they can not obtain enough of it, and from my personal experience it has been the means time and time again of actually saving children's lives in the Near East.

"In the area where the Near East Relief is operated, milk producing animals are tubercular, and we cannot depend upon that source of milk supply. In a recent evacuation of refugees canned milk was of great help because of its concentrated food value. Many of the refugees were compelled to travel for days at a time with no other food to depend upon than a can of American Condensed Milk."

* * * * *

Herbert Hoover had similar experiences when combating malnutrition with the 13,000,000 children in Belgium and other European countries. The results of these experiences can be fully understood from the following quotation from one of Mr. Hoover's speeches.

"The feeding of tens of millions of French and Belgian people was the first attempt ever made anywhere, so far as I know,

EXPERIMENTS IN MALNUTRITION

at the mass feeding of a whole nation. We sought such scientific advice as was to be obtained—there were no experts. We soon found that the children were failing on a ration that should be ample for adults.”

“One of the first effects of the invasion was to denude the people of Belgium to a very large extent, and the north of France, almost wholly of their cattle. The people were absolutely dependent for the rearing of their children on these cattle. The number of debilitated children up to ten years of age greatly increased. The number of adolescent children developing tuberculosis increased to a disheartening degree. In consequence of this it was necessary to maintain a stream of condensed milk for four years. Something over 1,000,000 children of the Belgian and French towns and cities were put under systematic inspection and feeding and this continued during the last three and a half years of the occupation. After the armistice, public health statistics in the war zone showed that the disease mortality among children was less than the pre-war normal, in spite of the fact that they went through nearly five years of continuous famine.”

“There is no cruelty to a population greater than to rob them of their milch cows,—the white race cannot survive without dairy products.”

“Let’s finish our job by doing for the children of America what we have done for the children of Europe. Let’s give them the benefit of the knowledge and experience we got abroad, very largely at the expense of the American people who gave so freely for relief work.”

* * * * *

Extract from the reprint, “An Interesting Experiment with Mal-Nourished Children,” taken from the August 1922 issue of the Nations Health Magazine.

“This brief report is submitted as constituting another method of approach to the mal-nutrition problem. It outlines the first of a series of experiments undertaken in order to ascertain the comparative value of fluid milk and condensed milk in the treatment of undernourished children.

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The site of the experiment was a small New Jersey city within commuting distance of New York. From each of two grammar schools a group of sixteen children was recommended by the school physician. The two groups, consisting of thirty-two children (boys and girls), when weighed and measured were found to average 13% below normal, the average for Group A being $9\frac{3}{4}$ pounds below normal, and for Group B being $7\frac{3}{4}$ pounds below normal. Children of varying ages were included; the average for Group A being eight years and for Group B being seven years.

The experiment was conducted for a period of twelve weeks, from December 1, 1921, to March 1, 1922, thus including not only the disrupting holiday season but also those months in which, according to Dr. William T. Porter, the growth increment is markedly less than in the fall season of the year.

Educational, nutritional, and health work was carried on with both groups. Weekly classes on health and nutrition were held during school hours for one school period of about forty minutes. At this time the children were weighed, the weights being recorded on tags which the children were urged to take home to their parents. This educational work was conducted not only in the schools but also in the homes of the children which were visited at least three times each during the experiment.

Mid-morning school feedings were given to both groups for five days a week during the experimental period. The children were excused from classes for a fifteen minute period each day for the feedings. Group A was given one and one-fourth cups of the fluid milk, the energy value of which was about 196 calories. Group B was fed an equal quantity of diluted condensed milk of the same caloric value as the feedings of fluid milk. All children of both groups received about two tablespoonfuls of orange juice daily, making the total food value of each feeding approximately two hundred calories. Individual charts were made showing the normal and actual weight curves. This graphic record of progress was watched daily and proved to be of great interest both to the children and their teachers.

EXPERIMENTS IN MALNUTRITION

The results from this experiment were as follows:—

- Total gain in weight of Group A (whole milk) 28.37 pounds.
- Total gain in weight of Group B (condensed milk) 34.62 pounds.
- Average gain in weight per child in Group A, 1.77 pounds.
- Average gain in weight per child in Group B, 2.16 pounds.
- Expected gain per month 0.50 pounds.

The total gain in weight for Group B which had the condensed milk feedings exceeded the total gain of Group A by 6.25 pounds, and the average gain per child for Group B was 0.39 pounds more than for Group A.

The resulting figures of this preliminary experiment may be taken to indicate that sweetened condensed milk has a par value with fluid milk (pasteurized) in the treatment of mal-nourished children of school age. Similar experiments now under way tend to verify the results herein reported."

* * * * *

Dr. Louis Sanman, N. Y. C., in his report entitled "P. S. No. 38, N. Y. C., Experiment with Undernourished Children," contributes still further data regarding the place of condensed milk in the diet of the mal-nourished child.

"During the Summer of 1922 The Borden Company undertook an experiment to show the relative value of condensed milk and whole milk as a food for some forty-six children selected from Public School No. 38, N. Y. C.

These children were selected from the most poorly nourished and one group of twenty-three was given 200 calories of condensed milk daily and the other group a like amount of whole milk for a period of three months.

The Out Patients Department of St. Vincent's Hospital, New York, agreed to examine these children before and after the feeding experiment. This examination included a complete physical examination, a complete blood count and X-ray examination. An X-ray picture was taken of the right forearm including the elbow and wrist.

The feeding was carried out under the direction of representatives of the Borden Company and a considerable amount of hygienic instruction was given in the homes of these children in both groups.

The results of this experiment which was conducted for a period of approximately three months, are given briefly as follows:—

Group A (fluid milk) had gained thirty-eight and one-quarter pounds. Group B (diluted condensed) had gained thirty-eight and five-eighths pounds, the gains in weight for the two groups being almost identical. The X-ray pictures showed improved bone conditions in both groups. There was a greater increase in the number of red corpuscles in the blood in the Eagle Brand group than in the fluid milk group. The physical examinations showed improvement for both groups.

The above result leads to the conclusion that for the 200 calories of milk given to each case in addition to the regular daily diet, the improvement for the group fed on condensed milk was equal to that of the group fed on bottled milk pasteurized.



CONDENSED MILK

These various experiences in dealing with malnutrition all have one essential feature in common—the use of condensed milk. This food proved equally valuable in relief work among war refugees and in the treatment of public school children of New York.

What is Condensed Milk?

Borden's Eagle Brand Condensed Milk is pure cow's milk properly combined with unadulterated cane sugar.

The milk which is used in Eagle Brand is fresh, pure, full cream milk from healthy cows. The cows are examined and the dairies carefully inspected at regular intervals. The condensaries are located near the dairies, which makes it possible to receive the raw milk in a perfectly fresh state.

The laboratory system maintained by the Borden Company insures milk of an even higher quality than that required under the government pure food laws. From each can of pure raw milk delivered to the plants, a sample is taken and immediately tested by experts to detect the slightest deviation from the required standards.

The milk, having passed the inspectors at the condensary, is put into heating-wells where it is subjected to a temperature of about 206 degrees Fahrenheit by passing a jet of live steam through it. This degree of heat is held for about five minutes in the heating wells. The milk is then passed on to sugar wells where it is mixed with pure sugar which is added for the purpose of preserving. This mixture is then run into vacuum pans where it is held at a temperature of not more than 140 degrees Fahrenheit for a period of from 1 to 1½ hours, the temperature being gradually lowered until the batch is finished. By this process the growth-promoting properties of the milk are not lost, and the fresh milk and pure sugar are properly blended. The finished product is run through the cooling system, and then into the standard size cans as sold in stores. From the time the milk passes into the vacuum pan

until it is sealed in the can every possible precaution is used to prevent contamination and oxidation.

To further insure the quality of this health food, sample cans of Eagle Brand Milk are taken from each batch and incubated for one week, or longer, at our home office laboratory, to determine whether there has been any bacterial growth since the first test made at the plant immediately after condensing. This final test is a check on all previous tests. Milk-born epidemics have never been traced in any way to Borden's Eagle Brand Condensed Milk. It is an absolutely safe milk supply. Clean milk kept clean—is the Borden ideal.

How to Care for Eagle Brand After Opening Can

It is safe to leave the milk in the original can. If you empty the can into some other container you must admit that it would be a great risk unless you feel sure that the container was as clean as the original can. The tin does not injure the quality of the milk after the can has been opened and exposed to the air. It is however, unsanitary and dangerous to expose any food, because of the dust, flies, etc., which carry disease germs, and even though you keep the opened can of Eagle Brand in a cupboard or ice box, we recommend that you cover the can tightly with an inverted cup or tumbler. By these means the contents of the opened cans will remain wholesome for a longer period than ordinarily would be taken for consumption.

EAGLE BRAND AS A HEALTH FOOD

Eagle Brand is truly a health food. It contains all the substances necessary for body growth—protein, fat, carbohydrate, ash constituents and vitamins.

The protein in Eagle Brand is more easily digested than protein in fluid milk, due to the process which it undergoes in condensation. It forms a fine flocculent curd in the stomach in comparison to the large thick curd formed from bottled milk.

There is a liberal proportion of carbohydrate in Eagle Brand which is also easily digested and assimilated. This substance supplies heat and energy necessary for the human body. If a child's diet is low in fat, a larger proportion of carbohydrate is necessary.* Fat can be replaced by cane sugar without harm to the organism. Carbohydrates in fact put less strain than fats on the digestive system during the process of digestion.

There are more ash constituents present in Eagle Brand than in human milk. They are in a form easily assimilated by the body.

"The vitamins, Fat soluble A and water soluble B retain almost their original potency after the process of condensation. The amount of water soluble C vitamin varies with many factors, depending primarily upon the amount in the original milk and secondarily upon the process of heating and evaporation, with special reference to oxidation."**

For the reasons stated above many digestive systems which are weak can digest and assimilate Eagle Brand milk without any disturbance whatsoever.

*Amer. Jour. Dis. Children, June, 1920. Von Picquet, "Fat Replaced by Cane Sugar."

**Extract from an article on *Vitamins in Milk* by Dr. M. J. Rosenau, Boston Medical Journal, May, 1921.

CONDENSED MILK FOR SCHOOL USE

The importance of the teachers' position in overcoming malnutrition has already been described and the definite suggestion made that they start health and nutrition work among their classes. An essential feature of such a program is the regular addition of Borden's Eagle Brand Condensed Milk to the children's daily diet.

The first question is:—"Why should *condensed milk* be used for the malnourished child?"

1. With the proper dilution and administration, Eagle Brand will meet every essential need as a milk food.
2. It can be definitely depended upon as being absolutely free from harmful bacteria. (One can never be too careful regarding the cleanliness of milk. Know where your milk supply comes from.)
3. It is decidedly economical.
4. It keeps perfectly and is most convenient in actual use.

The next question is: How can the teacher introduce the use of condensed milk into the regular school program?

This can generally be arranged with little difficulty. The head of the school, moreover, is usually glad enough to cooperate in such a plan. In many schools there is already some provision made for serving children milk between meals. Eagle Brand is not only less expensive than pasteurized bottled milk but is far easier to buy and keep on hand for school use.

About 10 o'clock, or the middle of the forenoon session, is the best time for the school feeding. Many teachers have the mid-morning feeding at the recess period or during brief rest periods between classes, in order not to disrupt the regular school program.

The preparation of this health food is very simple. The utensils and the cans of milk can be kept with the classroom equipment. Some of the older girls can be assigned to take charge of the mixing of the milk and thus relieve the teacher of the details.

CONDENSED MILK FOR SCHOOL USE

For a class of thirty children the utensils necessary for the preparation of the milk are as follows:—

- 1 large covered 8 quart enamel pail.
- 1 quart measure.
- 1 ladle.
- 1 standard tablespoon.
- 1 can opener.
- 2 dish towels.
- 1 dish cloth.
- Paper cups.

Malnutrition formulae: —

Individual formula

- *2 tablespoons Eagle Brand to two-thirds cup of water.

Large quantity formula

- 1 can Eagle Brand to 8 cups water.
- This quantity will feed 9 children.

Cocoa Recipe

(Recipe for 9 Children.)

- 3 tablespoons cocoa 8 cups boiling water
- 1 can Eagle Brand

Mix the cocoa and sugar and dilute with water adding a little at a time. Boil about 2 minutes, pour in the milk and beat with an egg beater to prevent scum from forming on top. 1 teaspoon vanilla improves the flavor.

*Always pour milk from can into spoon—allowing the milk to level itself but not run over.

THE NUTRITION CLASS

The Nutrition Class should meet regularly every week for a period of about forty minutes. At this time the children should be weighed, the weights being recorded on tags which the children are urged to take home to their parents.

If the teacher has the time she can easily make attractive and interesting tags which are appropriate to various seasons and occasions—a tag for Thanksgiving week, a tag for Valentine week, an Easter tag, etc. If the class is too large or the teacher's time too limited to do this, she can buy attractive tags at any stationery store, or if necessary, she can simply use plain manila tags. It is very important to have some sort of tags, however, as it stimulates the child's interest to have something to take home to show his parents. Incidentally, it arouses the interest of the parents in the nutrition class and keeps them regularly reminded of its progress.

The teacher should also keep a systematic health record for every child in the class. An effective way of doing this is to make a large health chart of heavy paper, like the ordinary wall map, which is attached to a wooden roller and which can be hung on the wall or blackboard or even rolled up when not in use. There should be space on this chart for the name of each child in the class, his age, height and normal weight. The chart should be so arranged that each child's actual weight gain can also be recorded every week and a star placed on the chart for such gains. (See illustration in Lesson 1 for sample chart.)

Organized nutrition lessons should be presented each week at which time health rules previously mentioned should be reviewed and new lessons given. The lessons should emphasize the value of milk, of leafy vegetables, of fresh and dried fruits and of coarse breads and cereals in the daily diet. Technical terms such as protein, carbohydrates, ash constituents and vitamins should be eliminated from the lessons when teaching children under the sixth grade. Stress should be placed upon proper habits of hygiene such as bathing, long hours of sleep, plenty of fresh air, exercise and dental hygiene.

THE NUTRITION CLASS

Illustrative material in the nature of posters, the placing of stars on the weekly weight chart for gains in weight, health records, games, songs, plays and stories are all helpful in stimulating children's interest in their weight gains and improved physical conditions.

Through the courtesy of the companies listed in the appendix, educational material bearing directly on health subjects will be supplied free of charge to all teachers desiring such information. The material is varied in nature and contains stories, recipes and material for making posters, besides authoritative information on food and health habits.



NUTRITION AND HEALTH

NAME	AGE	HGT.	AVER. WT.	ACTUAL WEIGHT			
				DATE	DATE	DATE	DATE

*This is a sample health chart for teachers,
such as was described on page 30*

*These health records are to be used by the child to encourage the performance of good health and food habits. The Borden Company, upon request, will send a copy to teachers and health workers. If these records are to be used in the Health Curriculum the children can make copies of them very easily.

Subject: GENERAL HYGIENE

1. *Suggest the formation of a club.*
 - a. The club idea stimulates much interest.
2. *Suggested aim or purpose.*
 - A. The purpose of this club is to help children to become strong and well.
3. *Suggested motto.*
 - A. "Health Means Preparedness."
4. *Suggested names of club*
 - a. "Watch Us Gain Club."
 - b. "Milkpie Health Club."
5. *Suggested Rules.*
 1. Rules of the club.
 - a. Health:—
 - Bathe frequently and wear clean clothes.
 - Brush the teeth at least once every day.
 - Sleep 10 hours with windows open.
 - Drink a pint of milk a day.
 - Eat vegetables, fruit and cereals every day.
 - Drink 4 to 6 glasses of water a day.
 - A bowel movement every day.
 - Exercise and play out of doors every day.
 - b. Food:—
 - Meals should be regular.
 - Do not eat between meals.
 - Never over-eat.
 - Eat slowly and masticate your food well.
 - Eat a variety of foods.
 1. Eat vegetables, fruits, and cereals, each day.
 2. Drink at least 4 glasses of water and 2 glasses of milk each day.
 2. Talk about general health habits listed above.
6. *Have children decide on name of club and elect officers.*
7. *Weigh children and show them how many pounds they have got to gain to be up to weight.*
8. *Explain about Health Records.**
9. *Give out tags.*

* See Preceding Page

WHICH ONE AM I LIKE ?



BESS

BESSIE NEVER TAKES
A BATH,
HER CLOTHES ARE BLACK
WITH GRIME;
SHE HATES TO DRINK
FRESH WATER,
AND IS CROSS MOST
ALL THE TIME.

MARY TAKES A BATH EACH
DAY,
HER CLOTHES ARE CLEAN
AND WHITE;
SHE DRINKS A LOT OF
WATER TOO,
WHICH KEEPS HER
WELL AND BRIGHT.



MARY

How to make the poster

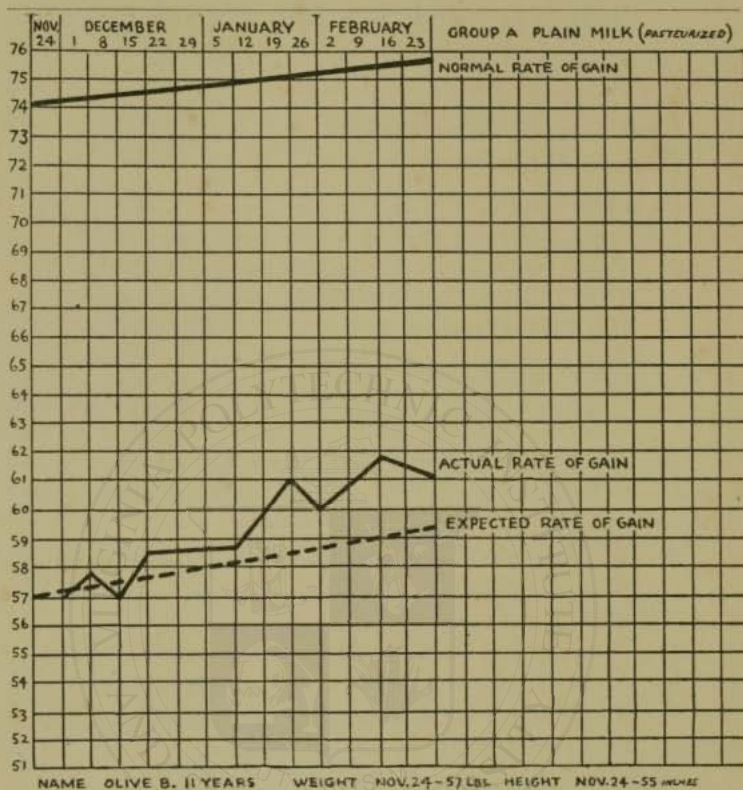
Take two pasteboard dolls about six or eight inches tall. Dress with cloth dresses or paper dresses which come with the dolls. These dolls may be obtained at a Five and Ten Cent store. Print at top of poster "WHICH ONE AM I LIKE." Then paste dolls below this caption. Print the name "Bess" under one doll and "Mary" under the other. Then soil Bess's dress, hands, face, and knees, and place red ink on her knees to represent scratches and cuts. Mary will stay clean and neat. Then print the verses underneath.

Subject: CLEANLINESS

1. *Weigh children.*
2. *Look over health records.*
3. *Review health rules.*
4. *Talk on subject.**
 - A. The Body.
 - a. Reasons why we should bathe our bodies.
 1. Particles of dead skin collect on surface.
 2. Dirt and perspiration fill the pores of skin and act like little stopples.
 - b. What bathing does.
 1. By washing skin the little pores are opened and cleansed and the body wastes then can easily be thrown off. (Show pores in back of hand).
 2. A bath a day is best. Bathe at least twice a week.
 2. The hair.
 - a. The hair should be washed every two weeks in pure soap and dried thoroughly in the sun.
 3. Hands and finger nails.
 - a. Wash before each meal and after going to toilet.
 - b. Finger nails should be kept neatly trimmed and should never be allowed to go (in mourning). Dirty finger nails help to spread disease.
 4. Care of the eyes and ears.
 - B. Cleanliness of the inside of the body is equally essential to health.
 - a. Wash inside of body with 4-6 glasses of water daily.
 - b. When exercising the skin throws off water as perspiration thru the pores of the skin. The body needs water to replace this loss.
 - c. The body needs water to regulate the organs of body and rid it of its wastes.
5. *Give out tags.*
6. *Place stars on chart.*

*The following stories would be good material to read for this lesson: "The Cruise of the Ivory Ship", "The Story of the Bath", "A Trip to Ivorydale". All sent free on request of Proctor & Gamble, Cincinnati, Ohio, in connection with their complete outline for the Cleanliness Crusade.

NUTRITION AND HEALTH



This is a sample weight chart used in the Borden mal-nutrition experiments. It shows the actual weight gain of a child who was fed regularly with bottled milk (pasteurized)

Subject: MILK

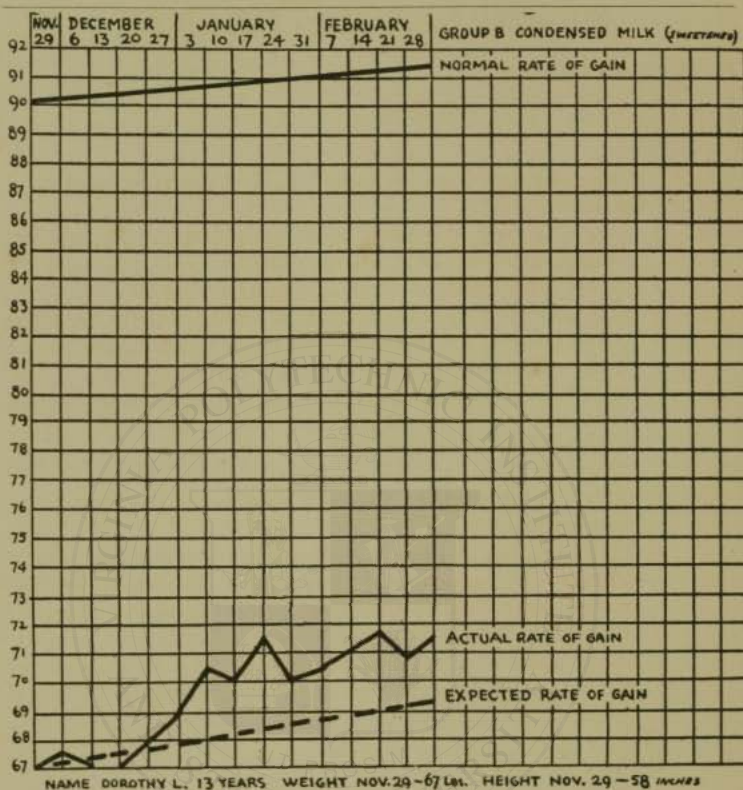
1. *Weigh children.*
2. *Look over health records.*
3. *Review cleanliness lesson.*
4. *Talk on subject.*
 - A. Milk.
 1. Fluid.
 - a) Contents.
 1. Fat:—furnishes energy.
 2. Protein:—builds strong muscles.
 3. Carbohydrate furnishes energy (more readily than fat.)
 4. Ash:—enriches blood, builds strong bones and teeth and regulates body fluids.
 5. Vitamins:—
 - b) Illustrate each composition. Show diagrams* with proportions of each.
 - c) Points to be stressed about milk.**
 1. Ways of keeping milk clean.
 - a) Importance of clean healthy cows.
 - b) Necessity of sanitary methods of handling milk.
 - d) Ways of serving.
 1. As a beverage.
 2. In beverages; cocoa, milk shakes, egg nogs.
 3. In cooking; in milk soups, desserts, white sauces.
5. *Read illustrative story—"The First Milkcarpies."*
From "Milkcarpie Magic"***
6. *Give out tags.*
7. *Place stars on chart.*

*Can be obtained from Borden Farm Products Company, 110 Hudson Street, N. Y. C.

**Information contained in booklet, "The Story of Condensed Milk," published by the Borden Co., 350 Madison Ave., N. Y. C.

***Published by The Borden Company, 350 Madison Avenue, New York City.

NUTRITION AND HEALTH



This is the same form of weight chart as that shown in Lesson 3. In this case the child was fed on Eagle Brand Condensed Milk

Subject: EAGLE BRAND

1. Weigh children.
2. Look over health records.
3. Talk on subject.

A. Composition: Fat, protein, carbohydrates, ash and vitamins.

1. Sugar easily digested and assimilated. Carbohydrates are valuable energy units.
2. More ash content than in mother's milk.
3. Protein in condensed milk is more easily digested than protein of bottled milk (pasteurized) due to the process which it undergoes in condensation. The condensed milk forms fine flocculent curds in the stomach in comparison to the large thick curd formed from bottled milk (pasteurized)—New York Medical Journal, May, 1923.
4. The fat is readily digested and assimilated due to emulsification.
5. "Fat soluble A and Water soluble B vitamins retain almost their original potency. The amount of water soluble C vitamin varies with many factors, primarily the amount in the original milk and secondarily upon the process of heating and evaporating, with special reference to oxidation," Boston Medical Journal, May, 1921.

B. Ways of serving.

1. As a beverage.
2. In beverages: cocoa, milk shakes, egg nogs, etc.
3. In cooking.*

C. Cleanliness and keeping qualities.

1. Motto, "Clean Milk Kept Clean" is The Borden Company's slogan. It is clean milk sealed in air tight cans and will keep in a cool place without the aid of ice. This gives an advantage over fluid milk especially in families where ice is a luxury.
4. Read illustrative story—"Johnnie's Adventures with the Milkarpies," from "Milkarpie Magic."**
5. Give out tags.
6. Place stars on chart.

*"Menus for Little People," a booklet showing how to plan balanced menus and a sample menu for every day of the week for children. Can be obtained from the Borden Co., 350 Madison Ave., New York City.

**Published by The Borden Company, 350 Madison Ave., New York City.



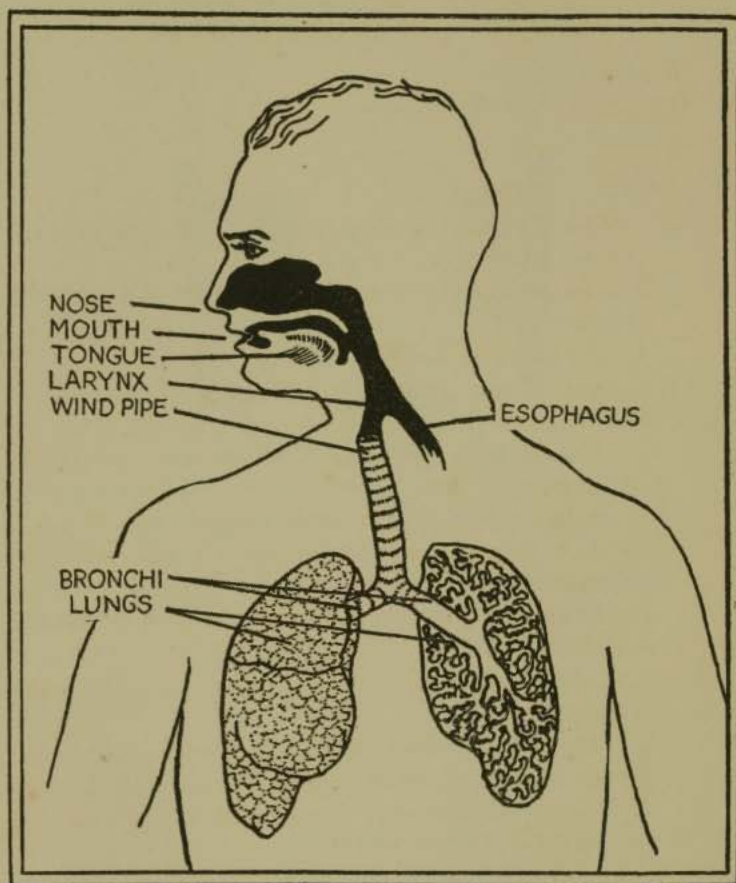
*Cereal for breakfast should be cooked
the night before*

Subject: CEREALS

1. Weigh children.
2. Look over health records.
3. Talk on subject.
 - A. Kind of cereal.
 1. Prepared and unprepared.
 - a) Prepared cereal: Puffed Wheat, Shredded Wheat, Grape Nuts, Corn Flakes, Post Toasties.
 - b) Unprepared cereal: Oatmeal, Pettijohn, Malt Breakfast Food, Ralston Food, Rice, Cream of Wheat.*
 - c) Call for examples from club.
 - d) Stress cereals containing bran coats of grain.
 - B. Composition of cereals.
 1. Fat, protein, carbohydrates and ash.
 2. Cereals furnish body with energy, body building materials, body regulating substances, and bulk.
 - C. Methods of preparation of unprepared cereal.
 1. Oatmeal as an example: (long slow cooking on account of starch content—uncooked starch is difficult to digest).
 - D. Use of cereals in diet.
 1. As breakfast dish.
 2. As supper dish.
 3. As garnishes in soups.
 4. In puddings and desserts.
 5. In cookies and candies.
 - E. Combination of cereals and milk.
 1. Eagle Brand, diluted two tablespoonfuls to $\frac{2}{3}$ cup of water, can be used advantageously on cereals.
 - F. Necessity for thorough mastication of cereals.
 1. During mastication the saliva mixes with the starch and starts the digestion of this foodstuff.
4. Read illustrative story—"Magic Oatfield."**
5. Give out tags.
6. Place stars on chart.

*Write to the Cream of Wheat Co., Minneapolis, Minn., for book on "The Important Business of Feeding Children."

**From "Cho-Cho and the Health Fairy," published by the Child Health Organization, 370 Seventh Ave., New York City. Can be obtained at nominal cost.



This diagram shows the nose and throat passages to the lungs

Subject: FRESH AIR

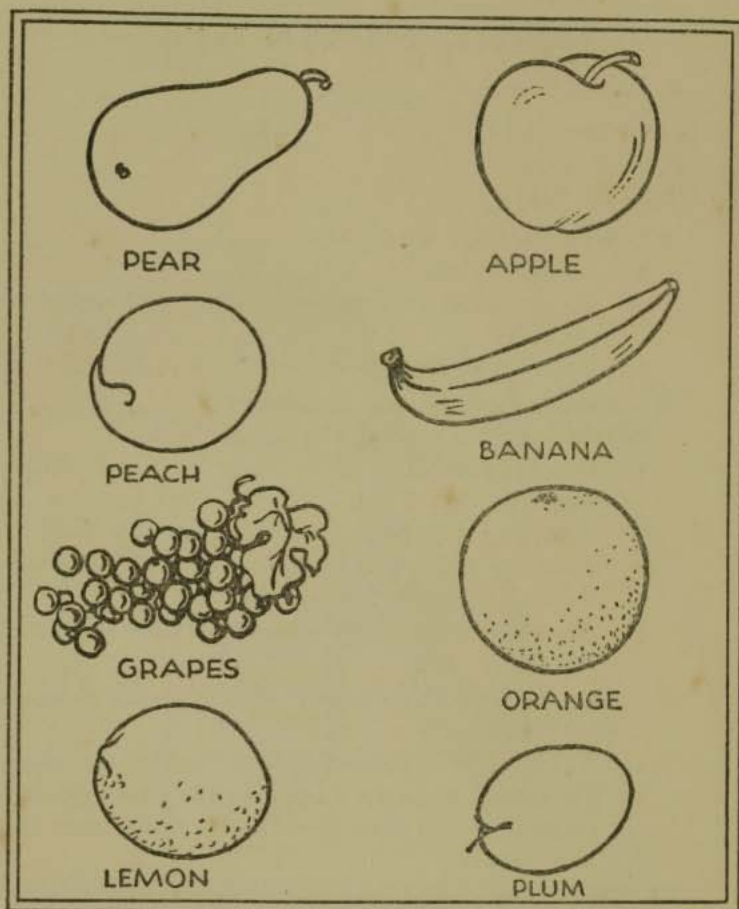
1. *Weigh children.*
2. *Look over health records.*
3. *Review cereals.*
4. *Talk on subject.*
 - A. Why the body needs air.
 1. To get oxygen.
 2. To get rid of carbondioxide which is harmful to the body.
 3. To carry off body heat.
 - B. Explain how air gets into lungs.

NOTE. Use any good Physiology book.

 1. Use diagram of lungs to show nose and throat passages.
 2. Inhaling brings fresh air and oxygen into blood.
 3. Exhaling returns the impure air and carbondi-oxide.
 4. Deep breathing comes from the abdomen not the chest.
 - C. Give reasons why children should breath through their noses.
 1. The cold air is warmed before it reaches the lungs.
 2. Dust and germs are caught in the moist mucous membrane and thus protects the lungs from dirt and disease.
 - D. Importance of playing out of doors.
 1. Exercise increases intake of fresh air.
 - E. Stress open windows at day and night.

Read illustrative story—"A Friendly Fairy Visits Mary Anne"*
6. *Give out tags.*
7. *Place stars on chart.*
8. *Take a walk in park or country.*

*From "Rosy Cheeks and Strongheart," published by Child Health Organization, 370 Seventh Ave., N. Y. C. Can be obtained at nominal cost.



How to play the game called "Fruit Basket"

Each child is given the name of some fruit, such as apple, pear, peach, grapes, apricot, etc. The children are seated in chairs arranged in the form of a circle. One child remains standing in the center with no chair to sit in. This child, for example, might be called "Apple." He would call "Pear" and "Apricot" change." Immediately the two children who have been given the names of these two fruits change chairs, only to be intercepted by the child bearing the name "Apple," if he is quicker than the other children. This is kept up until every child's name has been called. Occasionally, for a change, the child in the center of the ring calls "Fruit Basket turns over." At this signal every child has to change places and there results a mad scramble. This game gives the children a chance to become familiar with the fruits which they should know.

Subject: FRESH FRUIT

1. *Weigh children.*
2. *Look over health records.*
3. *Talk on subject.*

A.—Kinds of fruit.

1. Call for examples from club: (Oranges, apples, pears, plums and peaches).

B. Composition and function.

1. Carbohydrates, cellulose, ash, volatile oils.
2. Large percentage of water and cellulose together with the organic acids give laxative qualities.

C. Cleanliness of fruits.

1. Always wash fruit, such as apples, pears, plums, etc. Peddlers and shopkeepers with soiled hands leave dirt on skins.

D. How fruits are used in the diet.

1. Raw: as a breakfast dish or dessert.
2. Cooked: as a breakfast dish or dessert.
3. In combination with milk and eggs, as in desserts.

4. *Play the game "Fruit Basket."* (See opposite page.)
5. *Give out tags.*
6. *Put stars on chart.*

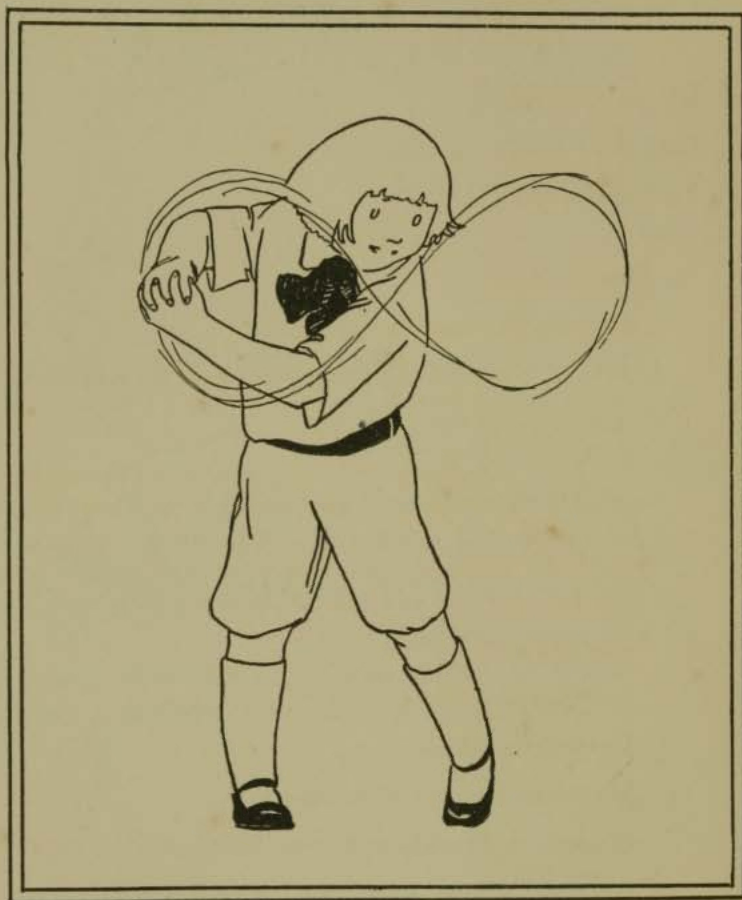


Figure Eight Exercise

This diagram shows the sweeping actions the child goes through in practising the exercise. Standing with the feet twenty or more inches apart and the head and trunk slightly inclined, the hands are clasped and extended forward, and then by a long side to side sweeping movement they are made to describe the figure 8. The entire upper portion of the trunk is moved in conjunction with the hands, the weight alternately shifting from one foot to the other, and the work of bending, straightening, and twisting the trunk accomplished as nearly as possible by the muscles surrounding the abdomen. In practising this exercise one should avoid strain. Ten sweeping motions is sufficient exercise if practised regularly every day.

Subject: POSTURE

1. *Weigh children.*
2. *Look over health records.*
3. *Talk on subject.*

A. Describe body.

1. Framework, muscles and organs.

NOTE: Use good physiology text book for reference.

B. Standing correctly is essential.

1. The habit of holding the body properly is important, not only for the general appearance of the body but for health and strength as well. In a stooping, slouching position, the organs of the body are crowded together and cannot do their work well.

C. Value of exercise.

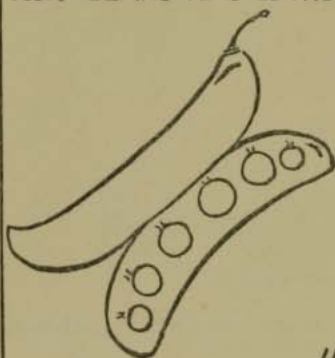
1. Strengthens muscles.
2. Develops lungs.
3. Stimulates activity of intestinal tract.

a) Give figure eight exercises* (explained on opposite page).

4. *Have setting up drill.*
5. *Give out tags.*
6. *Put stars on chart.*

*From "Principles of Health Control" by Francis M. Walters. Published by D. C. Heath & Co. (Text book).

SEEDS - BEANS - PEAS - LENTILS



LEAVES - LETTUCE - CHARD - SPINACH

BULBS - ONIONS - LEEK



STEMS - CARROTS - PARSNIPS

How to play the vegetable game

Buy a game of "Pin the Tail on the Donkey." Then blindfold the child, turn him around five times and then let him try to pin a cut-out colored vegetable (which can be obtained from any seed catalogue) on to the donkey's mouth. This is a splendid way to teach the children the different kinds of vegetables. They will also enjoy playing the game.

Subject: VEGETABLES

1. *Weigh children.*
2. *Look over health records.*
3. *Talk on subject.*

A. Kinds of vegetables.

1. Seeds: beans, peas, lentils.
2. Leaves: lettuce, chard, spinach.
3. Stems: onions and leeks.
4. Bulbs: carrots and parsnips.

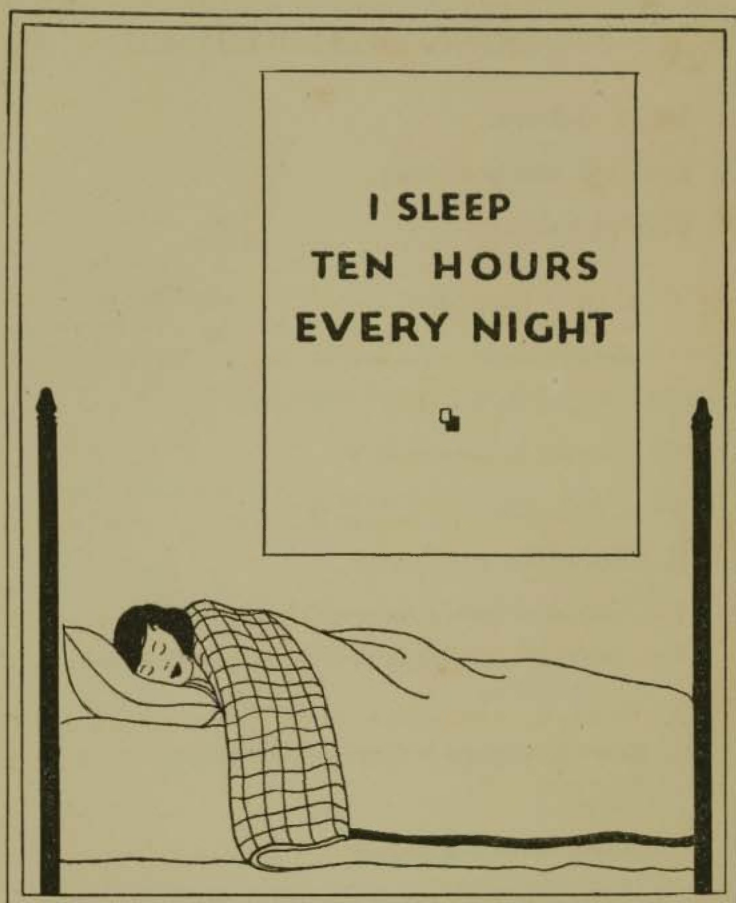
B. Composition and function.

1. Carbohydrates, cellulose, ash and vitamins.
2. Vegetables give bulk to the diet and thus counteract constipation.

C. How vegetables are used in diet.

1. Raw.
2. Cooked: boiled, baked.
3. Combined with cream sauces.
4. Used in soups.
5. Used in salads.

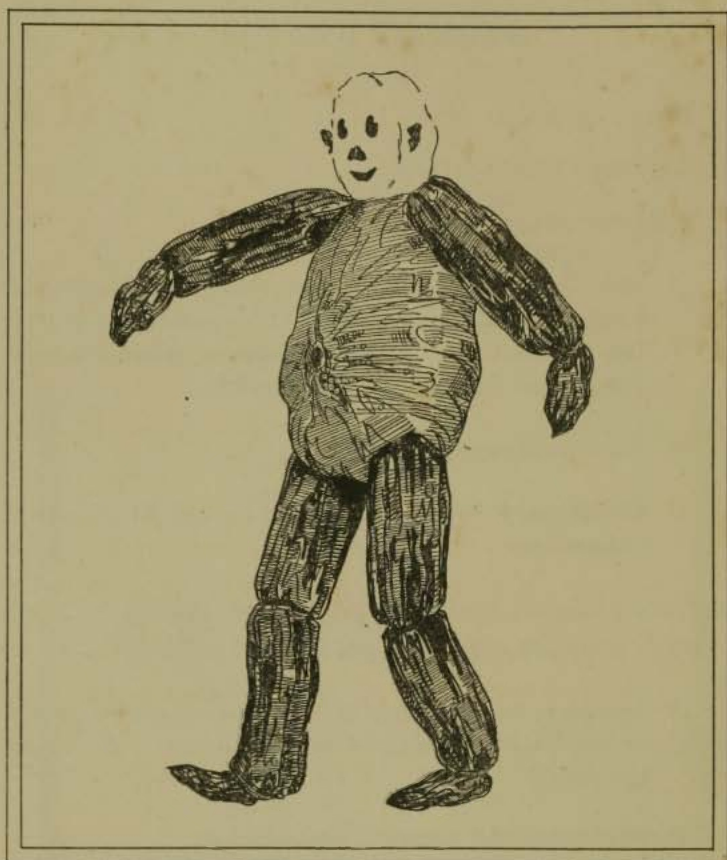
4. *Play vegetable game.* (See opposite page.)
5. *Give out tags.*
6. *Put stars on chart.*



*This is a sample of the posters the
children can make*

Subject: SLEEP

1. *Weigh children.*
2. *Look over health records.*
3. *Talk on subject.*
 - A. Sleep is a repair shop. Both mental and physical work break down the nerve cells. During sleep the reverse takes place. Ten hours of sleep is about the right amount per day for the average child.
 - B. Have windows open.
 - C. Bedclothes should be just heavy enough to withstand temperature.
4. *Have children make posters on the subject of sleep (to be used for exhibit at graduation exercises.)*
 - A. Posters to be made from cut out advertisements pasted on cardboard and lettered by the children. (See opposite page.)
 - B. Suggestions for names of such posters.
 1. "My Window Stays Open All Night."
 2. "I Sleep Ten Hours Every Night."
 3. "Fresh Air and Long Hours of Sleep Make Me Look the Way I Do."
5. *Give out tags.*
6. *Put stars on chart.*



The Dried Fruit Man

Place 1 marshmallow, 5 tooth picks, 1 fig, 6 dates, and 5 raisins on a piece of paper, and give to each child in the class. The Fruit Man's anatomy is as follows:—head—marshmallow; eyes, nose, mouth—raisins cut in small pieces; trunk—fig; arms and legs—raisins and dates. The tooth picks are used for the bony structure.

Subject: DRIED FRUITS

1. *Weigh children.*

2. *Look over health records.*

3. *Talk on subject.*

A. Explain the use of dried fruits.

1. As breakfast fruit.

a) Examples: Stewed prunes, figs, apricots.

2. As candies.

a) Examples: Raisins, stuffed dates, prunes, figs.

3. As desserts.

a) Examples: Prune whip, apricot pudding, raisin and rice pudding.

B. Composition and function.

1. Carbohydrate, cellulose, ash, and volatile oils.

2. Stress importance of the iron content of dried fruits in connection with the blood.

3. Explain what a corpuscle is.

a) Corpuscles are small disc-like bodies in the blood.

1. Kinds.

a) Red corpuscles carry iron and oxygen around the body.

b) White corpuscles act as policemen which try to destroy all the harmful substances which get into the blood.

C. Value of dried fruits as a laxative.

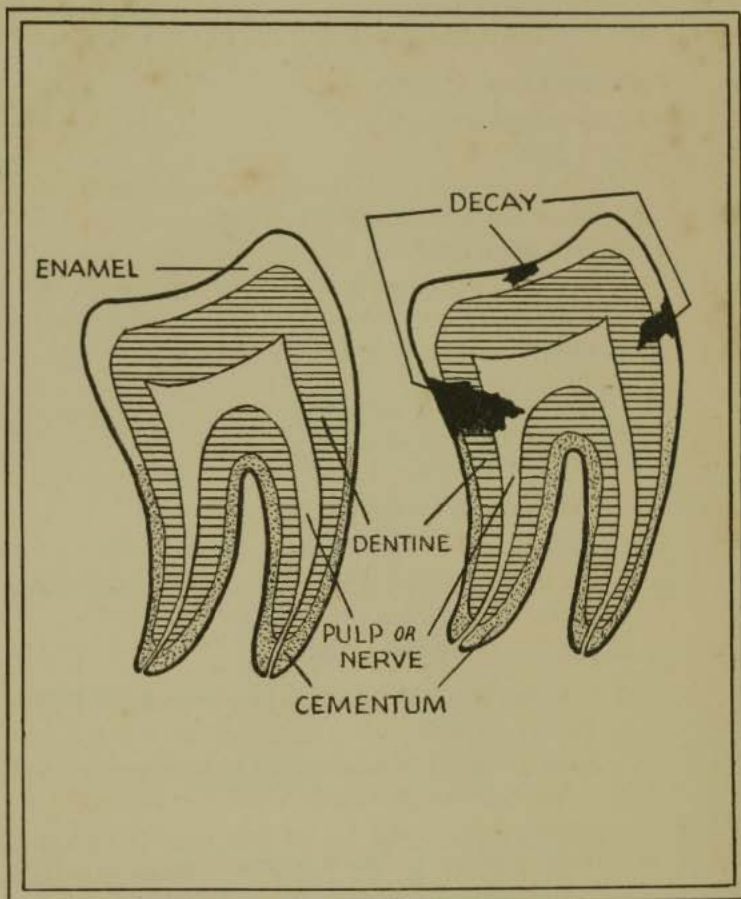
1. Organic acids increase the activity of the muscles in the intestinal tract.

2. Cellulose gives bulk to waste material in intestinal tract.

4. *Make Fruit Man.* (See opposite page.)

5. *Give out tags.*

6. *Put stars on chart.*

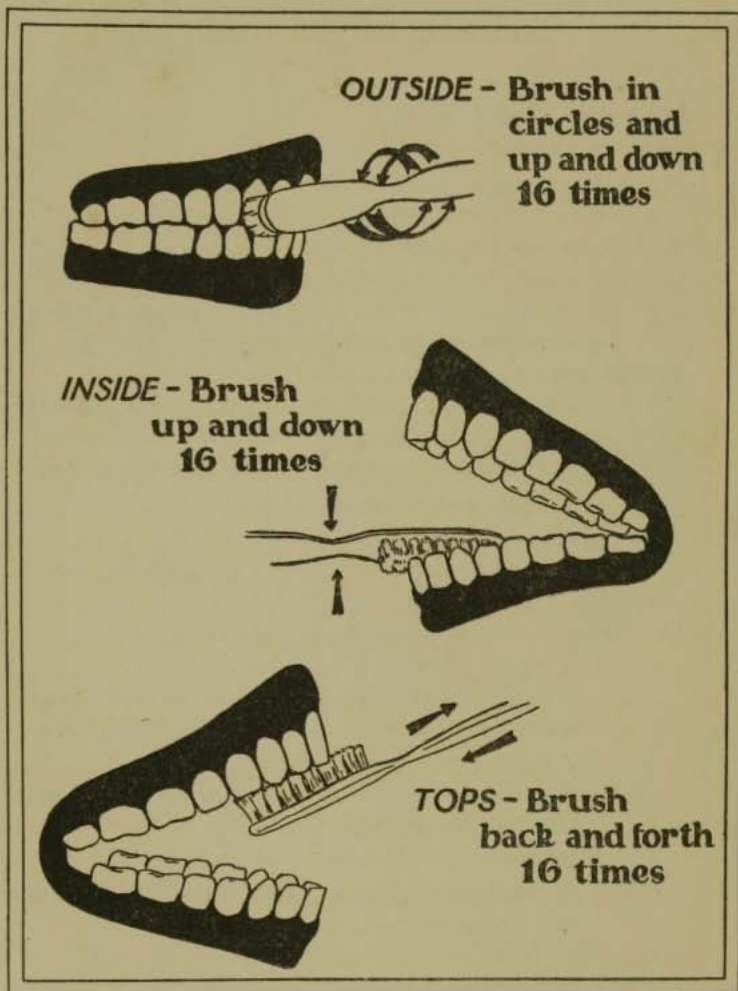


This diagram shows a longitudinal section of two teeth—one whole and the other decayed

Subject: TEETH

1. *Weigh children.*
2. *Look over health records.*
3. *Talk on subject.*
 - A. Draw cross-section of teeth on blackboard.
 1. Point out the different parts of a tooth.
 - B. Stress the importance of brushing teeth.
 1. Prevents decay and eliminates toothaches.
 2. Aids digestion. Decayed teeth affect digestion and are often the cause of illnesses.
 - C. How to care for the teeth.
 1. Eat food which will make and keep strong teeth. At least a pint of milk a day (not more than a quart), leafy vegetables, fresh and dried fruits and whole grain cereals, every day.
 2. Masticate well.
 3. Have teeth examined twice a year by dentist.
 4. Keep teeth clean.
 - D. Directions for brushing the teeth.
 1. The right kind of tooth brush.
 - a. A small brush with bristles of uneven length makes it possible to reach all tooth surfaces.
 2. The right kind of tooth paste.
 - a. A non-gritty paste which will remove food particles which stick to the teeth.
 3. How often teeth should be brushed.
 - a. At least twice a day, before breakfast and before going to bed.
 4. How teeth should be brushed.
 - a. Brush with a spiral movement, the top, sides, inside and outside of the teeth together with the gums.
4. *Read illustrative story, "H. M. Germ."**
5. *Give out tags.*
6. *Put stars on chart.*

*From "Health Stories and Rhymes," published by F. A. Owen Publishing Co., Dansville, N. Y. Can be obtained at nominal cost.



This diagram shows the correct method of brushing the teeth

Subject: TEETH

1. *Weigh children.*

2. *Look over health records.*

3. *Talk on subject.**

A. Review last lesson on teeth.

B. Mastication (chewing) is an improvement to health.

1. Mastication serves as a mechanical stimulus to the glands of digestion. Chewing separates the solid particles of food giving more surface for action of digestive juices. This is a well known fact:—the better condition the teeth are in the more complete mastication takes place.

a) Teeth are like little flour mills which grind up food into small particles for the stomach. If the food is not ground into small pieces the stomach has to work much harder and becomes tired and overworked.

C. Mastication helps also to develop good strong teeth.

1. Give examples of foods which need good mastication.

a) Dry hard foods such as: grapenuts, toast, brown breads.

b) Starchy foods such as: oatmeal, cornstarch pudding, bread, rice.

4. *Tooth brush drill.*

5. *Give out tags.*

6. *Put stars on chart.*

*Suggested material for reference: "Mouth Hygiene for School Children," published by Lakeside Publishing Company, 37 W. 39th St., N. Y. C. Can be obtained at nominal cost.

"Every Day Mouth Hygiene" by Joseph Head, M.D., D.D.S. Published by W. B. Saunders Company, Philadelphia, Pa.

TEA & COFFEE HONOR ROLL

NAME	WEEK ENDING			
	JAN. 5	JAN. 12	JAN. 19	JAN. 26
<i>James Smith</i>	✓		✓	✓
<i>Thomas Taft</i>	✓	✓	✓	✓
<i>Mary Jones</i>	✓	✓		✓
<i>Helen Tucker</i>		✓	✓	✓
<i>Grace Brown</i>	✓		✓	
<i>John Notten</i>				
<i>Helen McFall</i>	✓			

Draw the above chart on the blackboard and check off the names of the children every day, or at the end of the week. A similar chart can be made with a big sheet of wrapping paper tacked up on the wall

Subject: TEA AND COFFEE
HONOR ROLL

1. *Weigh children.*
2. *Look over health records.*
3. *Talk on subject.*
 - A. Stimulants as a whole refresh the body for a short time after the beverage has been taken but the condition of the body after this refreshing period is worse than before the stimulant is taken.
 - B. The ill effects brought about by stimulants.
 1. Fatigue and tired feeling.
 2. Loss of appetite.
 3. Sleeplessness.
 - C. Keep an Honor Roll for pupils not drinking either tea or coffee. (See opposite page.)
4. *Read illustrative story—"The Magic Window."**
5. *Give out tags.*
6. *Put stars on chart.*

*From "Cho-Cho and The Health Fairy," published by the Child Health Organization, 370 Seventh Ave., N. Y. C. Can be obtained at nominal cost.

MODEL BREAKFAST



ORANGE



COCOA



OATMEAL WITH CHOPPED DATES



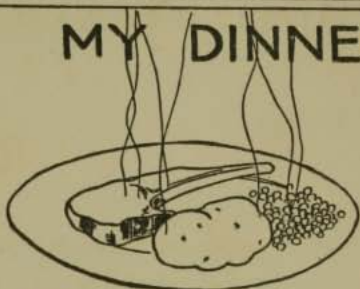
TOAST

*This is a sample "Model Breakfast Poster"
to be made by the children*

Subject: MODEL BREAKFAST

1. *Weigh children.*
2. *Look over health records.*
3. *Talk on subject.*
 - A. General discussion.
 1. Typical breakfasts which the children now have.
 2. Call for examples from the children.
 - B. Plan Model Breakfast.
 1. Milk.
 2. Fruit (baked apple, stewed prunes, oranges, stewed pears).
 3. Cereal (cooked cereal in winter and prepared cereal in summer is preferable).
 - a) Examples of cooked cereals: Oatmeal, Pettijohn, Quaker Oats, Cream of Wheat, Malt Breakfast Food, H-O.
 - b) Examples of prepared cereal: Grape Nuts, Corn Flakes, Shredded Wheat, Force, Puffed Wheat.
 - c) If Eagle Brand is used on cereal, sugar should be eliminated.
 4. Toast.
 5. Egg (optional).
4. *Make a Breakfast Poster.* (See opposite page.)
 - A. Teacher or children to bring in material cut out from magazine advertising.
 - B. Suggested names for poster.
 1. "This is What I Had for Breakfast; What Did You Have?"
5. *Give out tags.*
6. *Put stars on chart.*

MY DINNER



LAMB CHOP *broiled*
POTATOES - PEAS



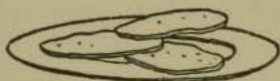
MILK



BRAN MUFFINS



CUSTARD



OATMEAL COOKIES

*This is a sample "Model Dinner Poster"
to be made by the children.*

Subject: MODEL DINNER

1. *Weigh children.*
2. *Look over health records.*
3. *Talk on subject.*
 - A. General discussion.
 1. Typical dinners which the children now have.
 2. Call for examples from the children.
 - B. Plan Model Dinner.
 1. Protein dish: meat, eggs or fish.
 - a) Eggs, soft boiled or coddled; fresh fish, roast chicken, mutton, steak (broiled), lamb chop (broiled).
 2. Vegetables (potato and one green vegetable).
 - a) String beans, asparagus, lettuce, celery (stewed), carrots, spinach, beet greens, green peas, beets, swiss chard.
 3. Bread and butter.
 4. Dessert (fruit or milk dessert).
 - a) Junket, custard, tapioca cream, apple tapioca prune whip, cooked fruit.
 5. Beverage: milk or cocoa.

NOTE: For variation, soups may be included in the dinner, such as beef, creamed vegetable, chicken, cream of spinach.
4. *Make a Model Dinner Poster.* (See opposite page.)
 - A. Teacher or children to bring in material cut out from magazine advertising.
 - B. Suggested names for poster.
 1. "My Dinner" and "This Dinner Will Make Me Healthy."
5. *Give out tags.*
6. *Put stars on chart.*

A SUPPER THAT WILL MAKE ME GROW

POACHED EGG
ON TOAST



MILK



BREAD & BUTTER



GRAHAM CRACKERS

BAKED APPLE



*This is a sample "Model Supper Poster"
to be made by the children*

Subject: MODEL SUPPER

1. *Weigh children.*
2. *Look over health records.*
3. *Talk on subject.*

A. General discussion.

1. Typical suppers that children now have.
 - a) Call for examples from the children.

B. Plan Model Supper.

1. Cereal such as rice, hominy, etc., with meat gravy for younger children.
2. Protein dish (meats, eggs and fish) for older children.
 - a) Scrambled eggs, chipped dried beef on toast, broiled fresh fish.
3. Bread and butter.
4. Vegetables (same as suggested for model dinner).
5. Dessert (fruit or milk dessert). Simple jelly, corn-starch pudding, rice pudding, ice cream, baked apple, stewed fruits.
 - a) Sometimes cookies may be given with dessert.
 1. Graham crackers, ginger snaps, simple cookies.

4. *Make a Supper Poster.* (See opposite page.)

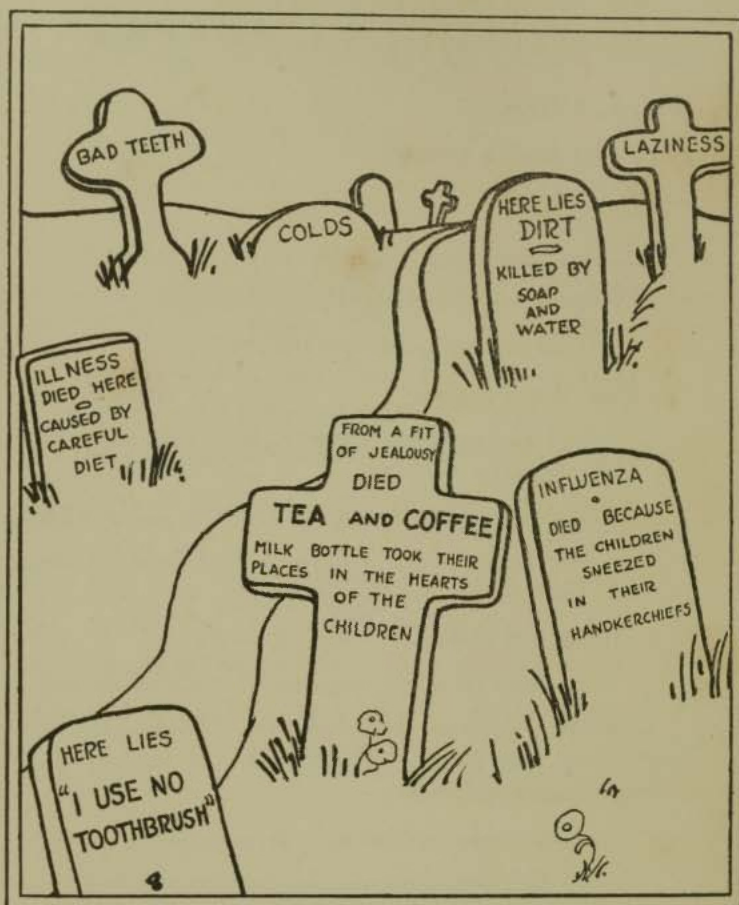
A. Teacher or children to bring in material cut out from magazine advertising.

B. Suggested name for poster.

1. "The Kind of Supper that Will Make Me Grow."

5. *Give out tags.*

6. *Put stars on chart.*

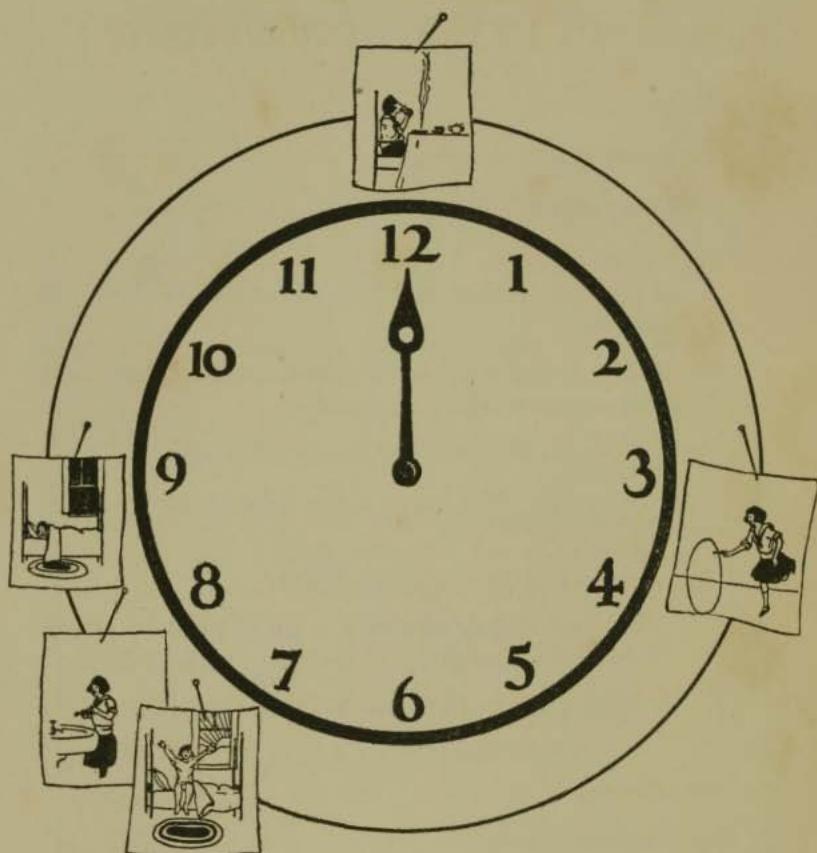


This is "The Cemetery," showing the tombstones of the various bad health habits which the children have buried

To make one, use a large green desk blotter, or any other heavy green paper, as a base. Distribute the tombstones among all those children who have given up at least one bad health habit since the class started. Each child then comes forward in turn and places his tombstone in the cemetery.

Subject: "THE CEMETERY"

1. *Weigh children.*
2. *Look over health records.*
3. *Talk on subject.*
 - A. Make little tombstones of white cardboard which will stand up.
 - B. Make a list of bad health habits which children have given up since belonging to club.
 - C. Print inscriptions on tombstones, such as:
 1. "Influenza" died because the children sneezed into their handkerchiefs.
 2. Here lies "I Use No Tooth Brush."
 3. "Tea and Coffee died from a fit of Jealousy—Milk Bottle took their places in the hearts of the children."
 - D. Arrange a miniature cemetery. (See opposite page.)
4. *Give out tags.*
5. *Put stars on chart.*



The above diagram indicates how the clock should look when partially completed

Subject: "LIVING THE RIGHT
KIND OF DAY"

1. *Weigh children.*
2. *Look over health records.*
3. *Talk on subject.*
 - A. Make a drawing on cardboard or heavy paper of a large clock face about twenty inches in diameter. Cut out hands of black cardboard and attach them to center of clock face with brass paper clasp, so that they are movable.
 1. Cut out pictures from magazine advertisements which depict the right health habits for every hour of the day. Examples: Sleep, exercise, open windows in school and bedroom, brushing teeth, breakfast, dinner, supper, bathing, etc.
 - B. Have children help arrange pictures around the clock.
 1. In margin by 7:30 put picture of boy getting up.
 2. Following should be a picture of a boy brushing his teeth and washing.
 3. Eating breakfast, etc.
 - C. A splendid time to review health habits.
4. *Give out tags.*
5. *Put stars on chart.*

This Certifies that
Mary Smith

has reached her normal weight for her height and age and is entitled to a Health Diploma. When she entered the Health Class she was.....years of age, and was.....feet.....inches tall, and weighed.....lbs. After completing a twenty weeks' Health Course her weight is.....lbs.

.....Teacher.

School.....



This is a sample diploma. Something like this should be awarded to members of the graduating class

Subject: GRADUATION

1. *A formal graduation is impressive.*
2. *The children's mothers should be invited.*
3. *All the children who have reached their normal weight are graduated.*
4. *Valedictory speech given by the girl or boy who has put the most effort into trying to gain.*
5. *Honorary mention made of other boys and girls who have tried hard to gain.*
6. *Exhibits of weight gains and health posters.*
7. *Diplomas signed by the Nutrition Teacher and Principal of the school should be given to the graduates. (See opposite page.)*
8. *Give a health play and sing health songs.**

*Plays and songs can be obtained from the Child Health Organization, 370 Seventh Ave., N. Y., at a nominal cost.

APPENDIX

HOW TO KNOW A CHILD'S FOOD REQUIREMENTS

The human body is a working machine, for which the fuel is food. This food, which is composed of proteins, fats and carbohydrates, has the function of supplying the body with energy. Energy is easily transformed into heat, and this form is readily measured.

The measure of energy is the heat unit or calorie. One calorie is the amount of heat required to raise one kilogram (2.21 lbs.) of water one degree Centigrade or one pound of water four degrees Fahrenheit.

By measuring the food intake in terms of calories you can determine whether a child is receiving the right amount of food per day.

AVERAGE TOTAL ENERGY REQUIREMENT OF CHILDREN*

<i>Age in Years</i>	<i>Total Calories</i>
1-2	900-1200
2-5	1200-1500
6-9	1800-2400
10-13.....	2300-3000

Sample Menu for the Diet of the Child from 6 to 9 Showing Calorific Value

Breakfast:

Orange.....	100
Shredded Wheat.....	100
Top Milk (10 oz.).....	100
Milk, Eagle Brand.....	125
Toast.....	100
Butter.....	50
	<hr/>
	575

*Included through the courtesy of Dr. Mary Swartz Rose, Assistant Professor, Dept. of Nutrition, Teachers College, Columbia Univ., N. Y. C.

APPENDIX

Dinner:

Hamburg Steak (Scraped Beef-balls).....	75
Baked Sweet Potato.....	150
Bread.....	100
Butter.....	100
Creamed Peas and Carrots.....	75
Bread Pudding (with Raisins).....	200
Milk, Eagle Brand.....	125
	825

Supper:

Potato Soup.....	150
Whole Wheat Bread.....	100
Butter.....	50
Stewed Apples.....	100
Oatmeal Cookies.....	100
	500

Total for day 1900

The following tables show the calorific or energy value of most every-day foods. With this as a guide any one can prepare a correct diet for children.

100 CALORIE PORTION

BEVERAGES:

	<i>Measure</i>
Cocoa.....	$\frac{2}{3}$ cup
Egg Nog.....	$\frac{1}{2}$ cup scant
Milk (botted).....	$\frac{3}{8}$ cup
Condensed Milk, diluted.....	$\frac{5}{8}$ cup
Orange Juice.....	1 cup

FRUITS:

Apple, baked with 2 tablespoons sugar . . .	$\frac{1}{2}$ large apple
Apple, fresh.....	1 large apple
Apple, sauce.....	$\frac{3}{8}$ cup
Bananas.....	1 large
Dates, unstoned.....	3 to 4 dates
Figs, dried.....	1 $\frac{1}{2}$ large
Oranges.....	1 large
Peaches, fresh.....	3 medium
Peaches, canned.....	2 large halves and 3 tablespoons juice
Pears, fresh.....	2 medium
Pears, canned.....	3 halves and 3 tablespoons juice
Pineapple, fresh.....	2 slices, $\frac{1}{2}$ in. thick
Pineapple, canned.....	1 slice and 3 tablespoons juice. ($\frac{1}{4}$ cup shredded)

APPENDIX

FRUITS: (Continued)

Measure

Prunes, stewed.....	2 prunes and 2 tablespoons juice
Raisins.....	$\frac{1}{4}$ cup
Rhubarb, stewed.....	$\frac{1}{2}$ cup
Strawberries, fresh.....	$1\frac{1}{8}$ cups

MEATS AND FISH (Cooked):

Beef, dried, creamed.....	$\frac{1}{3}$ cup
Beef, round steak.....	Slice 4 in. x 3 in. $1\frac{1}{8}$ in.
Beef Stew, with Vegetables.....	$\frac{2}{8}$ cup
Hamburg Steak.....	Cake $2\frac{1}{2}$ in. in diam. $\frac{7}{8}$ in. thick
Codfish Balls.....	1 ball 2 in. in diam.
Halibut Steak.....	Piece 3 in. x $2\frac{1}{4}$ in. x 1 in.
Creamed Salmon on Toast.....	$\frac{1}{4}$ cup salmon and $\frac{1}{2}$ slice toast
Lamb Chops, broiled.....	1 chop, piece 2 in. x 2 in. x $\frac{1}{2}$ in.
Chicken, creamed.....	$\frac{1}{4}$ cup
Clams.....	12 clams
Oysters.....	6 to 15
Bacon.....	2 or 3 strips

SALADS AND DRESSINGS:

Chicken Salad.....	1 small serving
Egg Salad.....	$\frac{2}{8}$ serving
French Dressing.....	$1\frac{1}{2}$ tablespoons
Fruit Salad.....	$\frac{1}{4}$ cup fruit and $\frac{1}{2}$ tablespoon dressing
Lettuce Salad with French Dressing.....	1 small serving
Mayonnaise Dressing.....	1 tablespoon
Potato Salad.....	$\frac{1}{2}$ serving
Tomato and Lettuce Salad.....	$\frac{1}{2}$ serving
Waldorf Salad.....	$\frac{2}{8}$ serving

SOUPS:

Asparagus, cream of.....	$\frac{1}{2}$ cup
Bouillon.....	4 cups
Oyster Stew.....	$\frac{1}{2}$ cup scant
Green Pea, cream of.....	$\frac{2}{3}$ cup
Potato.....	$\frac{1}{2}$ cup
Spinach, cream of.....	$\frac{1}{8}$ cup
Tomato, cream of.....	$\frac{3}{8}$ cup

BREAD, BISCUITS, MUFFINS, ETC.

Baking Powder Biscuit.....	2 small biscuits
Bread, Boston Brown.....	$\frac{3}{4}$ in. slice 3 in. in diam.
Graham Bread.....	3 slices, $\frac{3}{8}$ in. x 2 in. by $3\frac{1}{4}$ in.
White Bread.....	2 slices 3 in. x $3\frac{1}{2}$ in. x $\frac{1}{2}$ in.
Whole Wheat.....	2 slices, $2\frac{1}{2}$ in. x $2\frac{3}{4}$ in. x $\frac{1}{4}$ in.
Crackers (Graham).....	2 crackers
Graham Muffins.....	$\frac{1}{4}$ muffin
Roll (French).....	1 roll
Toast (Cream).....	$\frac{2}{8}$ slice toast and $\frac{1}{8}$ cup sauce
Zwieback.....	3 pieces $3\frac{1}{4}$ in. x $\frac{1}{2}$ in. x $1\frac{1}{4}$ in.

APPENDIX

COOKIES AND CAKE:

	<i>Measure</i>
Sponge Cake.....	Piece $1\frac{1}{2}$ in. x $1\frac{1}{2}$ in. x 2 in.
Plain Cookie.....	2 cookies $2\frac{1}{2}$ in. in diam.
Oatmeal Cookie.....	$\frac{3}{4}$ cookie 3 in. in diam.
Graham Cracker.....	3 crackers

CANDIES:

Chocolate, milk.....	Piece, $2\frac{1}{4}$ in. x 1 in. x $\frac{1}{8}$ in.
Honey.....	1 tablespoon
Sugar, white, granulated.....	2 tablespoons

CEREALS:

Cornflakes.....	1 $\frac{1}{4}$ cups
Farina, cooked.....	$\frac{3}{4}$ cup
Grapenuts.....	3 tablespoons
Oatmeal, cooked.....	1 cup
Rice, steamed.....	$\frac{3}{4}$ cup
Wheat, shredded.....	1 biscuit

CUSTARD, PUDDINGS, ICES:

Apple Tapioca.....	$\frac{1}{4}$ cup
Ice Cream Pudding.....	$\frac{1}{4}$ cup
Cup Custard.....	$\frac{1}{3}$ cup
Rice Pudding.....	$\frac{1}{3}$ cup
Tapioca Cream.....	$\frac{2}{3}$ cup
Baked Indian Pudding.....	1 $\frac{1}{2}$ tablespoons
Vanilla Ice Cream.....	2 $\frac{1}{2}$ tablespoons
Lemon Milk Sherbet.....	$\frac{1}{4}$ cup

EGGS AND CHEESE DISHES:

Eggs, raw.....	1 $\frac{1}{2}$
Eggs, scrambled.....	$\frac{1}{4}$ cup
Cheese Souffle.....	$\frac{1}{2}$ cup

VEGETABLES:

Asparagus, on Toast.....	2 $\frac{2}{3}$ serving
Lima Beans, buttered.....	$\frac{1}{4}$ cup
String Beans.....	2 $\frac{1}{2}$ cups of 1 in. pieces
Beets.....	4 beets 2 in. diam. or 1 $\frac{1}{2}$ cups sliced
Carrots.....	4 to 5 young carrots 3 to 4 in. long
Celery.....	4 cups of $\frac{1}{4}$ in. pieces
Lettuce.....	2 large heads
Peas, green.....	$\frac{3}{4}$ cup
Potatoes, sweet, baked.....	$\frac{1}{2}$ medium
Potatoes, white, baked.....	1 medium
Potatoes, white, boiled.....	1 medium
Potatoes, white, mashed.....	$\frac{1}{2}$ cup scant
Potatoes, white, scalloped.....	$\frac{5}{8}$ cup
Spinach, boiled.....	2 $\frac{1}{2}$ cups
Tomatoes, canned.....	1 $\frac{3}{4}$ cups
Tomatoes, fresh.....	2 or 3 medium

MISCELLANEOUS:

Butter.....	1 tablespoon
Sugar.....	2 tablespoons
Peanut Butter.....	2 $\frac{1}{2}$ tablespoons

VITAMINS IN FOODS

	A	B	C		A	B	C
Bread, White (Water)...	?	+	-	Tomatoes, Raw or Canned	+	++	+++
“ “ (Milk)....	+	+	?	Beans, Kidney.....	*	+++	*
“Whole Wheat (Water)	+	++	?	“ Navy.....	*	+++	-
“ “ “ (Milk)...	++	++	?	“ String (Fresh)....	++	++	++
Barley (Whole).....	+	++	-	Cabbage, Fresh, Raw....	+	+++	+?
Corn, Yellow.....	+	++	-	“ Cooked.....	+	++	+?
Oats.....	+	++	-	Carrots, Fresh, Raw....	++	++	++
Meat, Lean.....	-to+	+?	+?	“ Cooked.....	++	+	+
Beef Fat.....	+	-	-	Cauliflower.....	+	++	+
Mutton Fat.....	+	-	-	Celery.....	*	+	*
Pig Kidney Fat.....	++	-	-	Cucumber.....	*	+	*
Oleomargarine.....	+	-	-	Dandelion Greens.....	++	++	+
Liver.....	++	++	+	Eggplant, Dried.....	*	++	*
Kidney.....	++	++	+?	Lettuce.....	++	++	+++
Brains.....	+	++	+?	Onions.....	*	++	++
Sweetbreads.....	+	+	*	Parsnip.....	-?	++	*
Fish, Lean.....	-	+	*	Peas.....	++	++	+?
“ Fat.....	+	+	*	Potatoes (Boiled 15 min.)	++	++	+?
“ Roe.....	+	++	+?	“ (“ 1 Hour)....	*	++	+?
★Milk, Fresh.....	+++	++	+V	“ (Baked).....	*	++	+
★ “ Condensed.....	+++	++	+V	Sweet Potatoes.....	++	+	*
“ Dried, (Whole)....	+++	++	+V	Radish.....	*	+	*
“ Skimmed.....	+	++	+V	Rutabaga.....	-?	++	+++?
Buttermilk.....	+	++	+V	Spinach, Fresh.....	+++	+++	*
Cream.....	+++	++	+V	“ Dried.....	+++	++	*
Butter.....	+++	-	-	Squash, Hubbard.....	++	*	*
Cheese.....	++	*	*	Turnips.....	-?	++	*
Cottage Cheese.....	+	*	*	Apples.....	+	+	+
Eggs.....	++	+	+?	Bananas.....	+?	+?	+
Almonds.....	+	+	*	Grape Juice.....	*	+	+
Cocanut.....	+	++	*	Grapefruit.....	*	++	++
Hickory Nuts.....	*	++	*	Lemon Juice.....	*	++	+++
Peanuts.....	+	++	*	Orange Juice.....	+	++	+++
Pecans.....	*	+	*	Prunes.....	*	+	-
Walnuts.....	*	++	*	Raspberries (Fresh or Canned).....	*	*	+++

+—Contains the Vitamin.

++—Good source of the Vitamin.

+++—Excellent source of the Vitamin.

—No appreciable amount of the

Vitamin.

?—Doubt as to presence or relative amount.

*—Evidence lacking or insufficient

V—Variable.

The above chart showing the presence or absence of the various Vitamins in various common food substances was reproduced in miniature in Hygeia, page 62, April, 1923—published by the American Medical Association.

★NOTE—Condensed milk and fresh milk contain the same amounts of the three most important Vitamin “A”, “B” and “C”.

Teachers desiring sample copies of the above chart as reference material for their Domestic Science classes may obtain them upon request, free of charge.

The following commercial companies will supply free of charge educational material bearing directly on health subjects to all teachers and health workers desiring such information.

- Armour & Co. (Dept. of Food Economics), Chicago, Ill.
Beech-Nut Packing Co., Canajoharie, N. Y.
Borden Co., 350 Madison Ave., N. Y. C.
Borden's Farm Products Co., 110 Hudson St., N. Y. C.
Joseph Campbell Co., Camden, N. J.
Calumet Baking Powder Co., Chicago, Ill.
Cream of Wheat Co., Minneapolis, Minn.
Colgate Co., Jersey City, N. J.
*Domestic Engineering Co., 1900 Prairie Ave., Chicago, Ill.
Gold Dust Corporation, 65 Broadway, N. Y. C.
Hills Brothers Co. (Dromedary Dates), 375 Washington St., N. Y. C.
H-O Cereal Co., Buffalo, N. Y.
Kellogg Co., Battle Creek, Mich.
Knox Gelatine Co., 101 Knox Ave., Johnstown, N. Y.
Loose-Wiles Biscuit Co., 811 Commerce Bldg., Kansas City, Mo.
Mennen Co., 339 Central Ave., Newark, N. J.
Metropolitan Life Insurance Co., 1 Madison Ave., N. Y. C.
Minute Tapioca Co., 39 Jefferson St., Orange, Mass.
National Biscuit Co., 10th Ave. & 15th St., N. Y. C.
Palmolive Co., Milwaukee, Wis.
Postum Cereal Co., 342 Madison Ave., N. Y. C.
Proctor & Gamble Co., Cincinnati, Ohio
Quaker Oats Co., 17 Battery Place, N. Y. C.
Ralston Purina Co., (Ralston Food) St. Louis, Mo.
Royal Baking Powder Co., 100 East 42d St., N. Y. C.
Rumford Baking Co., Providence, R. I.
Shredded Wheat Co., Niagara Falls, N. Y.
Sun-Maid Raisin Growers, Fresno, Cal.
Takamine Corporation, 120 Broadway, N. Y. C.
Ward Baking Co., So. Blvd. & St. Mary's, N. Y. C.

*Material may be had at nominal cost.

HEIGHT AND WEIGHT TABLE FOR BOYS

Hgt. Ins.	5 Years	6 Years	7 Years	8 Years	9 Years	10 Years	11 Years	12 Years	13 Years	14 Years	15 Years
30	35	36	37								
40	37	38	39								
41	39	40	41								
42	41	42	43	44							
43	43	44	45	46							
44	45	46	47	48	49						
45	47	48	49	50	51						
46	48	49	50	51	52						
47	51	52	53	54	55	56					
48	53	54	55	56	57	58					
49	55	56	57	58	59	60	61				
50	58	59	60	61	62	63	64				
51	60	61	62	63	64	65	66	67			
52	62	63	64	65	66	67	68	69	70		
53	64	65	66	67	68	69	70	71	72	73	
54	67	68	69	70	71	72	73	74	75	76	77
55	70	71	72	73	74	75	76	77	78	79	80
56	72	73	74	75	76	77	78	79	80	81	82
57	74	75	76	77	78	79	80	81	82	83	84
58	77	78	79	80	81	82	83	84	85	86	87
59	81	82	83	84	85	86	87	88	89	90	91
60	84	85	86	87	88	89	90	91	92	93	94
61	87	88	89	90	91	92	93	94	95	96	97
62	91	92	93	94	95	96	97	98	99	100	101
63	95	96	97	98	99	100	101	102	103	104	105
64	100	101	102	103	104	105	106	107	108	109	110
65	105	106	107	108	109	110	111	112	113	114	115
66	111	112	113	114	115	116	117	118	119	120	121
67	117	118	119	120	121	122	123	124	125	126	127
68	123	124	125	126	127	128	129	130	131	132	133
69	130	131	132	133	134	135	136	137	138	139	140
70	138	139	140	141	142	143	144	145	146	147	148
71	144	145	146	147	148	149	150	151	152	153	154
72	151	152	153	154	155	156	157	158	159	160	161
73	157	158	159	160	161	162	163	164	165	166	167
74	164	165	166	167	168	169	170	171	172	173	174
75	171	172	173	174	175	176	177	178	179	180	181
76	178	179	180	181	182	183	184	185	186	187	188

HEIGHT AND WEIGHT TABLE FOR GIRLS

Hgt. Ins.	5 Years	6 Years	7 Years	8 Years	9 Years	10 Years	11 Years	12 Years	13 Years	14 Years	15 Years
39	34	35	36								
40	36	37	38								
41	38	39	40								
42	40	41	42	43							
43	42	43	44	45	46						
44	44	45	46	47	48	49					
45	46	47	48	49	50	51					
46	48	49	50	51	52	53					
47	51	52	53	54	55	56					
48	53	54	55	56	57	58					
49	55	56	57	58	59	60	61				
50	58	59	60	61	62	63	64				
51	60	61	62	63	64	65	66	67			
52	62	63	64	65	66	67	68	69	70		
53	64	65	66	67	68	69	70	71	72	73	
54	67	68	69	70	71	72	73	74	75	76	77
55	70	71	72	73	74	75	76	77	78	79	80
56	72	73	74	75	76	77	78	79	80	81	82
57	74	75	76	77	78	79	80	81	82	83	84
58	77	78	79	80	81	82	83	84	85	86	87
59	81	82	83	84	85	86	87	88	89	90	91
60	84	85	86	87	88	89	90	91	92	93	94
61	87	88	89	90	91	92	93	94	95	96	97
62	91	92	93	94	95	96	97	98	99	100	101
63	95	96	97	98	99	100	101	102	103	104	105
64	100	101	102	103	104	105	106	107	108	109	110
65	105	106	107	108	109	110	111	112	113	114	115
66	111	112	113	114	115	116	117	118	119	120	121
67	117	118	119	120	121	122	123	124	125	126	127
68	123	124	125	126	127	128	129	130	131	132	133
69	130	131	132	133	134	135	136	137	138	139	140
70	138	139	140	141	142	143	144	145	146	147	148
71	144	145	146	147	148	149	150	151	152	153	154
72	151	152	153	154	155	156	157	158	159	160	161
73	157	158	159	160	161	162	163	164	165	166	167
74	164	165	166	167	168	169	170	171	172	173	174
75	171	172	173	174	175	176	177	178	179	180	181
76	178	179	180	181	182	183	184	185	186	187	188

All tables prepared by Dr. Thomas D. Wood and included through courtesy of the Child Health Organization.

*SCIENTIFIC REFERENCES SHOWING THE
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