

HEALTHY CHILDREN / HEALTHY WORLD

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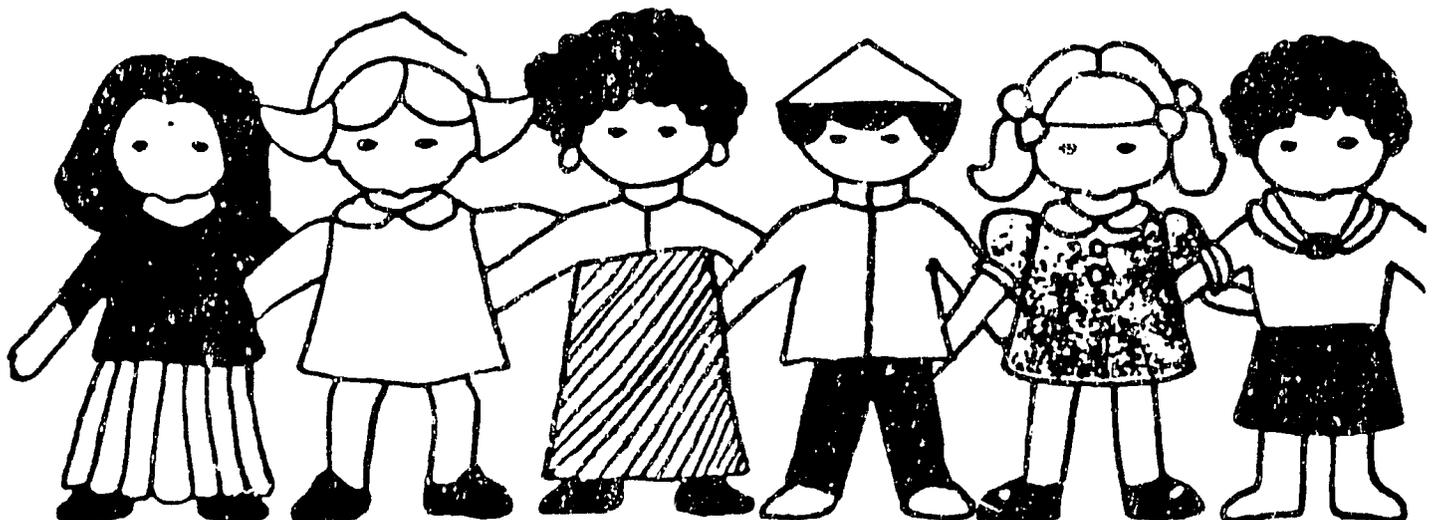


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INTRODUCTION

The following curriculum provides an overview of four simple strategies called GOBI that can save the lives of over 20,000 children in the developing world each day. The acronym *GOBI* stands for *Growth monitoring, Oral rehydration therapy, Breastfeeding and Immunization*. This curriculum guide introduces the students to some of the threats to children's survival and some potential solutions through the GOBI strategies.

Healthy Children/Healthy World was developed by INSA, the International Service Association for Health, Inc., of Atlanta, Georgia, for use in the Campaign for Child Survival. This two-year (1985–87) national education effort to increase awareness of child survival problems worldwide marked the beginning of a collaborative effort supported by groups such as INSA, Save the Children, U.S. Committee for UNICEF, Bread for the World, CARE, and others. Cynthia Dean developed, tested and revised the curriculum with the collaboration of Patricia Harrell and Ellen Wright of INSA and of Dr. Kathleen R. Miner of Emory University. The information contained in this curriculum guide was obtained principally from UNICEF, CARE, INSA, the National Council for International Health (NCIH), and World Health Organization sources.

Purpose

UNICEF estimates that 40,000 children die around the world every day. The lives of half those children could be saved through the use of some simple and inexpensive health measures called GOBI, while thousands of others would be spared from conditions which blind and cripple them. The use of the GOBI measures (growth monitoring, oral rehydration, breastfeeding and immunization) have been estimated by UNICEF to have already saved the lives of four million children between 1981 and 1986.

This curriculum guide will introduce students in grades 6–10 to the concepts of child survival and GOBI in an interdisciplinary fashion. Additional activities are included to encourage interested students or teachers to become involved with local or international child survival issues.

Why Study This Material?

Children who enter kindergarten in 1987 will graduate from high school in the year 2000. As the students of today become the decision-makers of tomorrow in an increasingly interdependent world, the decisions they make will be dependent on their information of the world around them. And as the population in the developed world becomes proportionately smaller, events in the developing world will have increasingly more of an impact upon the way U.S. citizens live and think. All of us will benefit by having a more accurate understanding of the lives and situations of persons in developing countries—a world not unlike the United States of 100 years ago.

This quotation from a United Nations meeting in Mexico (1974) best states the reasons for exploring outside one's own nation or experiences:

We call on leaders of public opinion, on educators, on all interested bodies, to contribute to an increased public awareness of both the origins and the severity of the critical situation facing mankind today. Everybody has the right to understand fully the nature of the systems of which he is a part, as a producer, as a consumer, as one among the billions populating the earth.

He has a right to know who benefits from the fruits of his work, who benefits from what he buys and sells, and the degree to which he enhances or degrades his planetary inheritance.

Suggestions for Using This Guide

Contents

Included in this curriculum guide are:

- A teacher's guide with background information.
- Student handouts for each unit.
- Closure and evaluation activities.
- A glossary for both student and teacher reference.
- A resource section which contains audio-visual, curriculum, and organizational resources.
- A pretest/posttest.

The majority of the information in this guide comes from UNICEF's State of the World's Children report for 1987.

Each unit includes:

- lesson length
- subjects most compatible with that particular unit
- student objectives
- a materials needed list
- a vocabulary list.

Lesson Presentation

For the sake of convenience, only five units are presented—an introductory unit and one describing each of the GOBI interventions. If time permits the presentation of only one unit, we suggest introducing the first unit. Due to the amount of material to be covered in the first unit, we suggest you plan to present two separate lessons. If that is not possible, plan to at least cover Activity I. That presents the ideas of this entire curriculum guide in a nutshell.

Vocabulary

We suggest you review the vocabulary with your students before each lesson. Some terms will be new; others (such as North and South) will have a different meaning in a global context. All terms are listed in the included glossary.

Pretest/Posttest

Before teaching any material from this guide, we suggest you give your students the pretest/posttest as a non-graded quiz. It will be interesting to share with the students how knowledgeable the class as a whole is about health and living conditions worldwide. The test may also be used as a posttest for evaluation of student learning.

Skills

This curriculum is interdisciplinary in nature. While the five units may be taught individually or consecutively, all the units are designed so they may be integrated into various classes. Classroom subjects most compatible with a particular unit are listed in each unit heading. They include:

- Social Studies
- Health
- Geography
- Art
- Math
- Family Life
- Chemistry
- Biology
- Nutrition
- Language Arts
- Home Economics

Student skills covered in this curriculum include:

- Map reading
- Creative writing
- General reading
- Critical thinking
- Chart interpretation
- Research and investigation
- Problem solving
- Values development

Student Participation

It is the conviction of the authors that students learn best by actual hands-on experience. We strongly suggest that at least one enrichment activity be assigned to the students to reinforce and "bring home" the lessons learned during class time.

- Suggested enrichment activities are provided at the end of each unit for students in grades 6–10.
- Activities suited for older or advanced students are included under a special heading "Older Grades" at the end of each unit.

Follow-up

After students become aware of global problems, they (and you) may want more information about the issues, or may wish to get involved in efforts supporting child survival. The resource section contains:

- Additional teacher information
- Additional student readings
- Associated curricula
- Audio-visual resources
- A listing of development-related organizations and agencies.

Of Special Importance

One final word of caution. Much information in this curriculum points up the ever-widening differences between poverty and affluence, especially as reflected in health conditions. By no means do we mean to imply that "rich is good," "poor is bad," or "foreign is poor." Nor do we mean to imply that there are no affluent or healthy children in developing countries, or no poor or sick children in developed ones. We ask that you remain sensitive to this issue and consider the circumstances of the students in your class.

Curriculum Goals

This curriculum guide will:

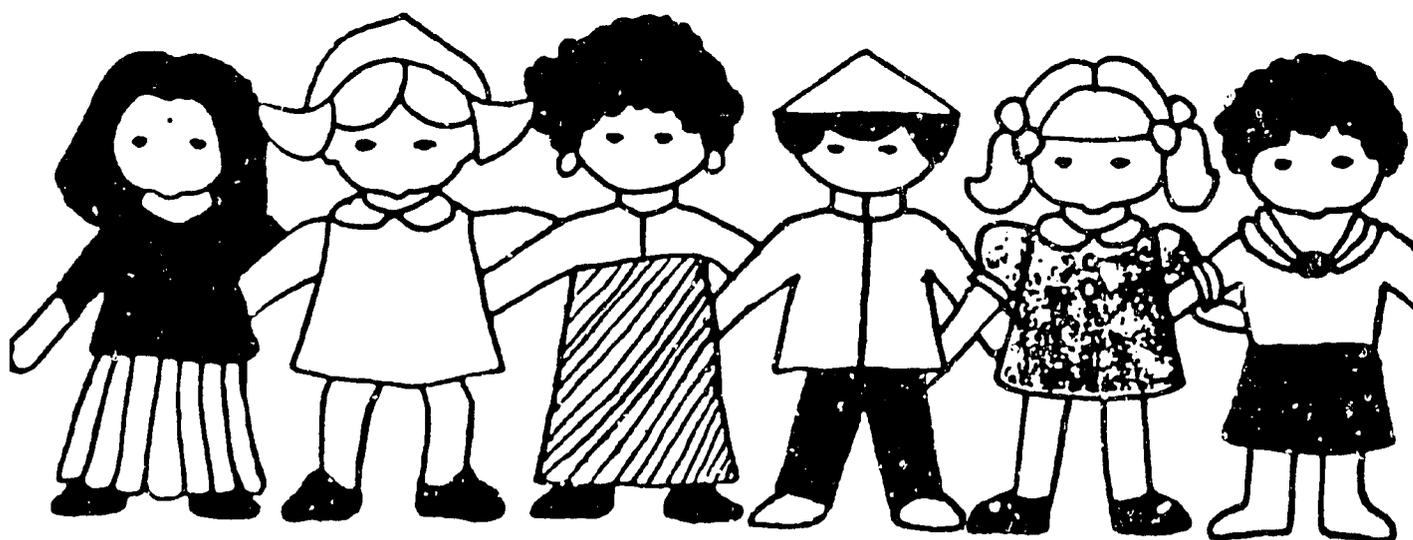
1. Provide students with an awareness of global interdependency.
2. Enable students to identify basic threats to children's health and potential solutions to those problems through the use of GOBI strategies.
3. Encourage student involvement in follow-up activities related to child survival issues.



"Promoting today's low-cost methods has saved the lives of 4 million children in the 1980s. But those same methods could save more than 7 million children every year" — says UNICEF's *State of the World's Children* report for 1987.

Photograph Hans Samsom

Teacher's Guide
to
Healthy Children /
Healthy World



TEACHER'S GUIDE

Background Information on Unit One: World Overview

Of all the problems confronting humanity today, none is more pressing—yet perhaps, less noticed—than the problem that UNICEF calls the “silent emergency.” No war has ever killed 15 million children in the space of a year. No famine, flood, fire or drought has taken the lives of 280,000 children in a week. No nuclear or environmental disaster has killed 40,000 children a day. While creating much suffering, these disasters take relatively few victims in comparison to the toll of the diseases of poverty. It is the “silent emergency” of malnutrition, infection and dehydration that quietly takes the lives of 40,000 children around the world, every day.

The situation seems nearly overwhelming, but *can* be improved. Four low-cost interventions have been recommended by UNICEF to provide a basic “safety net” of protection against needless childhood death. It is estimated that half of the world’s children who die daily can be saved by the interventions called GOBI:

- Growth monitoring
- Oral rehydration
- Breastfeeding
- Immunization

These four interventions work together to form a “safety net” to protect a child from common potential health hazards. To better understand why GOBI works, it is helpful to understand the problems GOBI combats and the conditions in which those problems occur. GOBI addresses the causative factors of the silent emergency, the “diseases of poverty”:

- Poor nutrition
- A lowered resistance to infectious diseases
- Chronic diarrhea
- A poor nutritional start in life

Diseases of poverty occur because of a lack of economic and social resources. In both developed and developing countries, income has been shown to be directly linked to health and survival. It is no accident that the rich nations of the world, without exception, have lower infant mortality rates (IMR) and longer average life expectancies. Developed nations can afford expensive water treatment and sewage disposal plants. Immunizations can be provided for all their citizens. Garbage disposal is available. For it was not the presence of big hospitals which reduced the frightful levels of infant mortality among today’s developed countries at the turn of the century. It was the institution of environmental health measures and social welfare reforms which improved the general health of the population. Provision of clean water and adequate waste disposal for all the world’s people would virtually eliminate diarrheal dehydration, the single biggest killer of children.

On a more personal level, poverty affects a family’s access to medical care. That is why GOBI is an especially important tool in combatting childhood death. It brings effective medical care within a family’s grasp.

- Growth monitoring is being done by mothers themselves in various mothers’ organizations worldwide.
- A health promoter, with only a few weeks of training, can be responsible for monitoring the ongoing growth and development of young children in a community.
- Oral rehydration can be taught to any family or community member.
- Trained community volunteers have proved capable of giving vaccines in immunization outreach campaigns.
- Children in several countries who have been taught the correct procedures in school can safely administer oral rehydration solution to younger children when they show signs of dehydration due to diarrhea.

An additional benefit is rendered by relying on "low-tech" health care. A family, a community, or a nation not relying exclusively on prohibitively expensive hospitals becomes more self-reliant in its ability to provide care for its members.

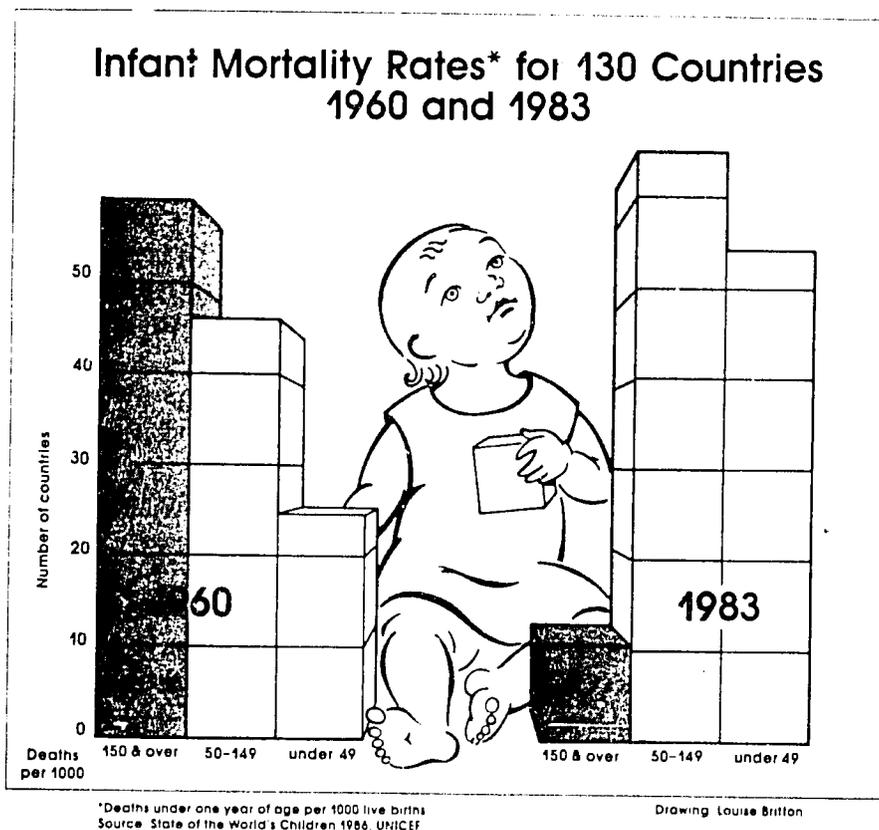
Concern about the effects of child survival upon population growth has been raised. Some believe that with more and more children surviving, population pressures in already fast-growing countries will worsen. For the short term, that may be true. In countries where there is a high IMR and no social security, having many children is the only guarantee that an elderly parent will not starve. The pressure to have many children is real. In certain areas of India, it is estimated that parents need to have seven to nine children in order to be assured that at least one son, traditionally the parents' caretaker, will survive into adulthood.

But many demographers predict the long-term effect of child survival programs will be positive. Countries that have improved their health conditions and lowered their infant mortality rates (like Korea, China, Singapore and some Latin American nations) have all noticed a drop in their birth rate. As parents begin to trust that their children won't die, the pressure to have large families will be reduced. Not only will the birth rate fall, but those children who are born protected by the GOBI "safety net" will likely reach a healthier and more productive adulthood.

The key to this child survival revolution is not rhetoric or even funding. The single most important factor in ensuring the success of this "revolution" is *political will*. Only a national vision of a future with healthy children is powerful enough to overcome the barriers to health that many children in developing countries face.

In El Salvador, a country torn by civil war, both sides have engaged in a cease-fire during national immunization days. Other countries, such as Ecuador, launched child survival campaigns that involved all members of society. And India has declared as its goal the immunization of *all* children by 1999 as a "living memorial" to the late Prime Minister, Indira Gandhi.

The leaders of the world are beginning to discover that it is a political asset to speak out for child survival. And the nations of the world, united in the determination to improve their children's health, are beginning to see the results of that determination.



Background Information on Unit Two: Growth Monitoring

Although malnutrition and related conditions are estimated to cost 5 million children their lives every year, children do not always die from actual starvation itself. The lack of nutrients and energy can weaken children and make them far more susceptible to infectious diseases. Lack of vitamin A produces xerophthalmia (ZEAR-oph-THAL-mee-uh), which can lead to irreversible blindness. And lack of sufficient food to fuel a small but active body is often manifested by a listlessness which dulls the child's desire to play, explore and learn.

The physical effects of malnutrition upon a child's body depend on the type and amount of food intake. In famine situations, where there is an absolute lack of food, the result is an obviously starved child. The picture is classic:

- thin, stick-like limbs
- round belly
- reddish hair
- the face of an "old man"

If the lack of food developed suddenly, the child may be normal in height, but extremely underweight, or "wasted."

Wasting and acute starvation are actually not very common, because an absolute food lack is rare. Much more likely is the situation where a child receives food, but not in optimal quantities. A sustained intake of not quite enough food to meet growth demands is called chronic undernutrition. In fact, chronic undernutrition may be present in the face of food abundance. But repeated attacks of diarrheal illnesses, respiratory diseases and fevers suppress a child's appetite and burn up the body's reserves.

The usual result of chronic undernutrition is children who often look healthy, but in fact have had their growth stunted and their development slowed. Some 98% of cases of chronic undernutrition are not obvious to untrained observers, leading some to label this condition as "hidden hunger." It is difficult for even trained health workers to detect mild-to-moderate amounts of growth stunting. Chronic undernutrition can, however, be detected by *growth monitoring*. This compares a child's growth pattern to a standard growth pattern. More importantly, a faltering of growth can be noted before malnutrition permanently stunts and weakens a child.

There are several forms of growth monitoring. One form, using arm circumference bands, measures the circumference of a child's upper arm. This circumference remains relatively unchanged between a child's first and fifth birthdays as "baby fat" is slowly replaced by muscle. Arm circumference bands are extremely simple to use. In many countries, school children use the bands to screen younger, more vulnerable children for undernutrition.

Most health workers prefer to weigh the children they are monitoring. Weighing can give a more precise picture of a child's nutritional status. But weight needs to be cross-referenced with another measure before a health worker can determine if a child is undernourished. Growth charts with weight-for-age graphs are most common. When used over a period of time, weight-for-age graphs give an excellent picture of a child's growth pattern. They are less useful in diagnosing wasting *vs.* stunting in underweight children. In communities where the date of children's births may go unrecorded, weight-for-age graphs are sometimes limited in their usefulness. Still, weight-for-age graphs are endorsed by the World Health Organization (WHO), which has designed a standard growth chart for worldwide use. (See Road To Health Chart Handout, Unit Two.)

Yet it is not the weighing that is the most important feature of growth monitoring. It is the opportunity for the mother to:

- gain information on the health status of her child;
- become a partner with the health worker in the child's care
- receive health information for herself, her child and her family.

A theme repeated by UNICEF is that "if the growth chart is not a tool for the mother, then it is not worth the paper it is printed on." Many countries' health programs encourage the

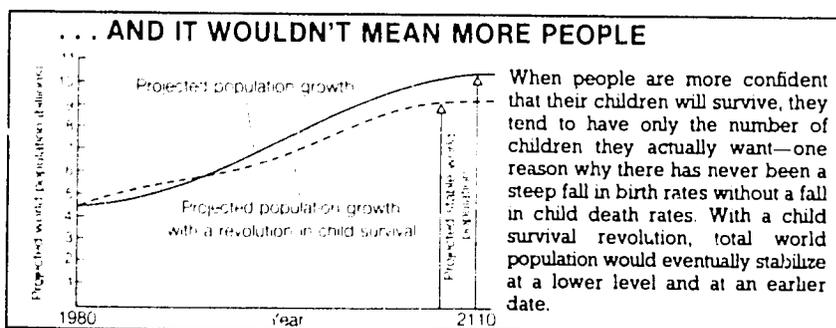
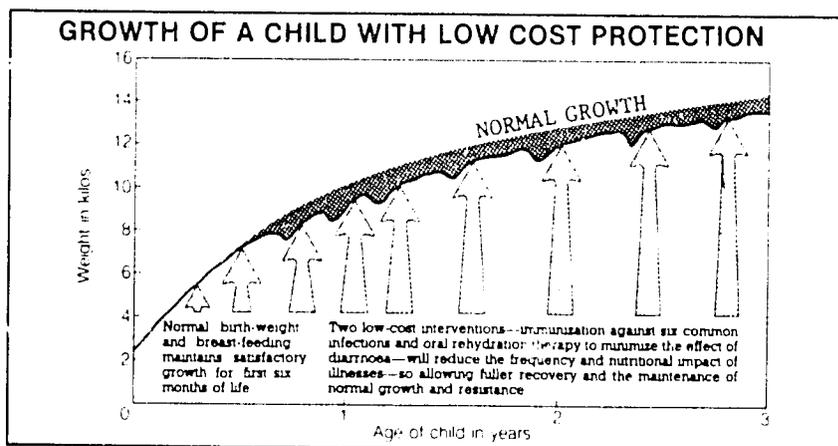
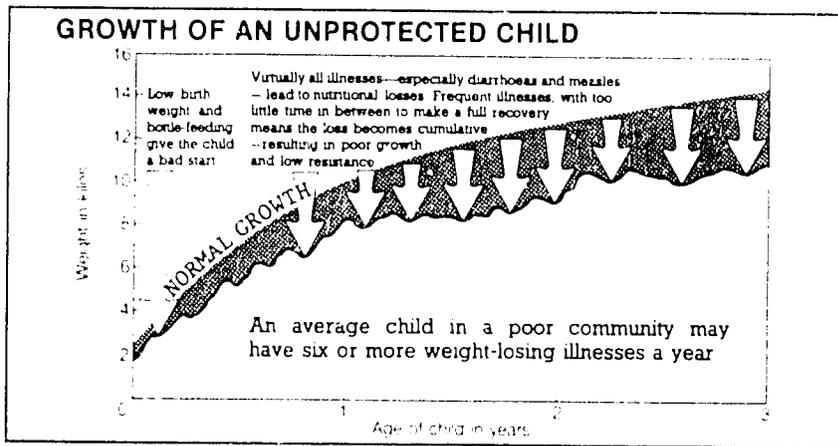
mother herself to do the weighing and to learn to interpret a growth chart. When the mother is involved, understands growth monitoring, and has access to health information, few other interventions are required. Since malnutrition is rarely caused by an absolute lack of food, supplementary feeding programs are seldom needed. Once instructed in improved child nutrition practices, such as ways to add protein and calories to the diet, the mother herself can usually supply a proper diet for her child's growth.

The revolution in child survival - HOW IT WORKS

Recent advances in knowledge mean that low-cost protection could save the lives of up to 7 million children a year and protect the normal development of many millions more. The aim and measure of this 'child survival revolution' is regular monthly weight gain — the best single indicator of a child's normal, healthy development. The growth charts below explain how it works — and why so much can be done with so little.



SEE how they grow



Frequent illness and lack of the basic nutritional advice listed below — not absolute shortage of food in the house — is the most important cause of child malnutrition. Regular weighing, growth charts kept by the mother and basic nutrition advice could therefore enable mothers to drastically reduce malnutrition in the modern world.

A mother may need help and advice from a health worker:-

- After five or six months begin giving other foods in addition to breast-milk — staples mashed with a little oil and skinned vegetables.
- Keep on breast-feeding until the child is at least one year old.
- Children have small stomachs — so feed a little and often.
- Persist in feeding during illness and immediately afterwards — even if the child has little appetite.

Background Information on Unit Three: Oral Rehydration

The largest single killer of children in the world is dehydration due to diarrhea. It is responsible for taking more than 5 million lives a year. While much less of a problem in developed countries where water is both pure and plentiful, diarrhea can still kill. In developing countries, where water may be obtained from fouled wells or muddy rivers, or is difficult to obtain for frequent handwashing, the toll can be quite high.

- In Guatemala and India, the death rate from diarrhea is more than 500 times the U.S. rate.
- In Latin America, diarrheal diseases account for over 20% of all deaths in children below five years of age.

Contrary to popular belief, cholera is not the most common diarrheal disease. WHO estimates that common *Escherichia Coli* (EH-sheer-RICK-ee-uh COH-li) bacteria, normally found in human and animal digestive tracts, causes more diarrheal illness than any other organism. Regardless of what organism causes diarrhea, the body responds in the following manner:

- In its attempt to flush out the offending organism, the gut releases large amounts of fluid.
- The ability to reabsorb liquids is impaired due to the irritation of the gut.
- The mechanism which transports glucose into the body through the intestines remains intact.
- By adding sugar to a slightly salty solution, the body can absorb liquids about 25 times more rapidly than it can absorb water alone.

The ability for the body to absorb sugars and whatever else is in a solution with them forms the basis for *Oral Rehydration Therapy* (ORT). When glucose is mixed with salt and water in the correct proportions, the body can reabsorb the fluid losses caused by diarrhea. Over 95% of cases of diarrheal dehydration can be successfully treated by ORT alone. And the British medical journal *Lancet* calls ORT "the greatest medical advance of the twentieth century."

Just what is this miracle treatment made from? Prepackaged sachets of oral rehydration salts produced by UNICEF and many developing countries contain:

- 3.5 g. of sodium chloride
- 1.5 g. of potassium chloride
- 2.5 g. of sodium bicarbonate
- 20 g. of glucose
- for addition to one liter of water

But obtaining the greatest medical advance of the twentieth century is even simpler than finding premeasured sachets. A homemade version of ORT is only slightly less effective than the prepackaged version. The recipe:

- eight level teaspoons of sugar
- one level teaspoon of salt
- one liter of water

Mixed by a family member, it has the same power to save a child's life as intravenous solutions and expensive care in a distant hospital, which until now had been the only available treatment. It is, however, important that the family member be trained. Excessive amounts of salt in the solution can actually prove harmful.

Diarrhea is an especially dangerous condition for babies and young children since they have so little body area (and fluid volume) in comparison to their size. Young children can become dehydrated and die within 24 hours. Along with learning the ORT recipe, mothers learn the warning signs of dehydration. These are:

- a sunken fontanel (soft spot)
- no tears when crying
- lessening or absence of urine
- skin so inelastic that it remains peaked after being pinched

All these signs indicate serious, life-threatening dehydration. If left untreated, the dehydration will progress to shock, then death. Mothers are often counseled to avoid the late stages of dehydration by giving a glass of ORT to children after they pass their first liquid stool, and to continue giving a glass of ORT for each successive liquid stool the child passes. The vast majority of diarrheal episodes will clear by the second or third day, considering the child's fluid losses have been replaced.

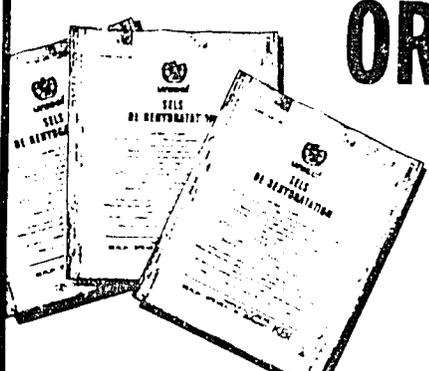
ORT may be almost miraculous in its ability to restore a dehydrated child to health, yet it is no more than a band-aid solution to the real problems:

- unsafe water supplies
- inadequate sanitary facilities

Many diarrheal diseases infect via fecal-oral transmission. Excrement contaminates the water that people drink, or water is not available for handwashing after defecation. Nor is there any place to safely dispose of human waste. WHO data from 1980 indicates that:

- three out of five persons in developing countries lack access to safe drinking water;
- not even one in four persons in those countries had access to any kind of sanitary facility for waste disposal;
- eighty percent of *all* illness and disease can be attributed to inadequate water and sanitation.

Diarrhea, malaria, parasitic worms, and trachoma (track-OH-mah—a form of blindness) all depend upon water for transmission to humans. UNICEF estimates that if everyone in the world had access to safe water and sanitary facilities, infant mortality could be reduced by 50%.



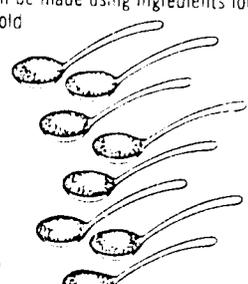
ORT — 'MEDICAL MIRACLE OF THE CENTURY'

Dehydration — caused by diarrhoea — is the biggest single killer of children in the modern world. Now it can be prevented by oral rehydration therapy (ORT) using either a 5 cent sachet of salts (left) or an even cheaper home-made version. As a result, parents themselves could prevent the deaths of several million children each year. (UNICEF)

THE DO-IT-YOURSELF VERSION

For preventing dehydration, an equally effective oral rehydration solution can be made using ingredients found in almost every household

8 TEASPOONS OF SUGAR



1 TEASPOON OF SALT



1 LITRE OF WATER



Some traditional remedies — such as rice congee or carrot soup — also make highly effective oral rehydration solutions.

HOSPITALS CHANGING TO ORT

Many hospitals in both poor and rich countries are now changing from intravenous therapy to ORT

BEFORE ORT

0.8%

DEATH RATES (as % of all diarrhoeal cases seen by hospital)

AFTER ORT

0.2%

NOTE: Median figure for 8 hospitals in developing countries.

SAVING LIVES — AND GROWTH

Frequent diarrhoea is one of the most important causes of malnutrition. The use of ORT can help to maintain a child's growth

A Turkish study on two groups of children — one with and one without ORT —

AVERAGE DURATION OF ILLNESS:

With ORT — 2.57 days

Without ORT — 4.97 days





MONTHLY AVERAGE WEIGHT GAIN:

With ORT — 430 gms

Without ORT — 324 gms

We believe that, ultimately, widespread adoption of ORT in developing countries will break the vicious cycle of diarrhoea, malnutrition and death, — especially for the principal victims: very young children.

Dr WB Greenough, Director, International Centre for Diarrhoeal Disease Research, Bangladesh.

Duncan Mil and Belinda Magee, The Observer, London Photograph Asem Ansari/ICDDR

Background Information on Unit Four: Breastfeeding

It would seem that the easiest GOBI strategy to implement would be *breastfeeding*. It is, after all, the traditional way of feeding babies. However, in recent years, breastfeeding, especially in developing countries, has been on the decline.

All over the world, a mother may choose not to breastfeed for a variety of reasons. Daycare in the workplace is not commonly available. Whether a professional in the capital, or a worker in the fields, a mother may not be able to spend the time needed with her infant to breastfeed. Many consider bottlefeeding to be more "modern," therefore better. And some women enjoy the freedom from the constant demands of a baby.

Sometimes there are physical conditions on the part of mother or child which would preclude nursing. Repeated childbearing and lactation, especially for a woman who is undernourished, can lead to a depletion of her body's energy and nutrient stores. Mothers who are ill, or who have active hepatitis or tuberculosis, or whose children have metabolic disorders are advised not to breastfeed. Still, such conditions are fairly rare.

Yet due to economic, climatic and sanitary conditions often found in developing countries, the practice of breastfeeding is especially advantageous there.

- Breastfed babies are far less likely to die than bottlefed babies. UNICEF estimates that bottlefed babies are two to three times more likely to die in infancy than babies who are exclusively breastfed for their first few months of life.
- Breastfeeding is the perfect food for babies from birth till four to six months of age.
- Maternal antibodies found in breast milk can protect young children from infectious diseases.
- Breast milk is pure, free, available at a moment's notice and is always the right temperature
- Breastfeeding helps delay a woman's ovulation and space her pregnancies.

Bottlefeeding may have significant economic disadvantages in developing countries. A woman requires a greater food intake when pregnant and lactating. In the United States, the cost of the greater food is about equal to the cost of the infant formula. In developing countries, however, the cost of the usually imported formula can far exceed the cost of additional food. UNICEF quotes data indicating the average annual cost for infant formulas in a developing country is \$200 to \$300. That is equivalent to 25% of the monthly food budget of a family living on the official minimum wage in Mexico. The costs are even higher in Africa, where formulas can cost a government clerk over 30% of his or her entire monthly salary.

Bottlefeeding has additional disadvantages in developing countries:

- Feeding with infant formulas, especially if overdiluted to make them stretch further, can leave an infant malnourished.
- Without refrigeration, the formula can spoil quickly.
- Made with impure water, the formula can be heavily contaminated.
- Lack of sterilizing equipment also can contribute to microbial growth.
- Any of the last three factors mentioned above can trigger a deadly case of diarrhea.

In developed countries, where refrigeration is available, formula is relatively cheap, clean water is plentiful, mothers are able to read preparation instructions, and health care is accessible, bottlefeeding can still cause problems. It has long been known that:

- Early development of food allergies and ear infections are relatively common in bottlefed babies, and relatively rare in breastfed ones.
- The *Journal of Tropical Pediatrics* reports that bottlefed babies have five times the risk of contracting pneumonia and 13 times the risk of diarrhea than breastfed babies.

Finally, there are yet other benefits of breastfeeding, not necessarily limited to developed countries:

- Mother-infant bonding is enhanced while breastfeeding.
- Breastfeeding exerts a powerful contraceptive effect. While not a reliable form of birth control for an individual woman, exclusive breastfeeding can delay ovulation and help

to space births. In areas of the world where access to birth control is limited, breast-feeding may be the only available contraceptive.

- Both maternal and infant mortality rates drop as the number of months between births increases.

To encourage breastfeeding, the World Health Assembly in May, 1981, adopted *the International Code of Marketing of Breast-milk Substitutes*. The provisions of the Code are twofold: governments of both developed and developing nations are asked to protect and encourage breastfeeding, while commercial infant formula companies are called upon to end the direct promotion of formulas to health centers or the public. Most infant formula companies have accepted the Code's main provisions, at least in principle. And some countries have enacted all or part of the Code as actual law.

The West: a return to breast-feeding

Until two generations ago, almost all human infants were breast-fed. Even as late as 1911, two-thirds of America's one-year-olds were still being fed on breast-milk. But by 1973, only a quarter of American infants were breast-fed from birth, and only 10% beyond three months.

Europe soon followed. In Sweden, the proportion of infants exclusively breast-fed at two months dropped from 85% in 1944 to 35% in 1970. In the Netherlands, the 1975 figure for exclusively breast-fed infants (at three months) was only 11%.

The driving force behind this change was modernization. More women began working and many saw the bottle as a symbol of their liberation. In response, infant-formula companies brought new products onto the market and began advertising them. And in an age which was almost unreservedly enthusiastic about all things modern and scientific, the infant formulas appealed to a growing sense of sophistication both in parents and in the medical profession. As more babies were born in hospitals, the emphasis on strict hygiene and spotless order made breast-feeding seem messy or 'unclean'. Most babies were separated from their mothers at birth in the interests of hospital efficiency, and they were fed on schedule rather than on demand.

But in the last decade, breast-feeding has staged a remarkable come-back in the Western world. In Norway, Finland and Sweden, for example, 95% of babies are now breast-fed from birth. In the United States the proportion of mothers who begin breast-feeding their babies has more than doubled between 1973 and 1980. In the Federal Republic of Germany, almost 70% of babies are still breast-fed at two months.

The trend back to breast-feeding - like the earlier trend away from it - has been led by better-educated mothers. A 1980 survey in the United States, for example, showed that almost 70% of graduate mothers breast-fed their children as

opposed to only 25% of mothers with nine or less years of schooling.

What caused the return to breast-feeding in the Western world?

First of all, a conviction about breast-milk's natural superiority led groups of women to start up organizations to support breast-feeding mothers - the La Leche League in America, Ammenhjelpen in Norway, the Nursing Mothers Association in Australia.

At the same time, modern technologies were coming to be looked at more critically and respect was beginning to grow again for the natural world. In the 1970s, scientific research reinforced this trend by discovering a great deal about the nutritional, immunological and emotional advantages of breast-feeding. Soon the medical profession and governments began to take notice. Sweden set up a breast-feeding task-force at ministerial level. The United States government, in 1984, has 'set the promotion of breast-feeding as a principal canon of United States health policy' - with the aim of raising to 75% the proportion of babies who are breast-fed from birth.

In the developing world, there are now signs of a similar drift away from breast-feeding - again led by the more modern and urban mothers. But poor mothers rarely earn the income needed to buy enough milk powder, and lack not only the clean water to mix it with but the equipment to sterilize bottles and the literacy to read the detailed instructions. A large-scale move away from breast-feeding in the poor world would literally mean the deaths and malnutrition of many millions more infants.

The rapid spread of information on - and support for - breast-feeding is therefore essential if the Third World is to avoid the trap and take less time than the West to realize that breast-milk is the best the world can offer its infants.

Background Information on Unit Five: Immunization

Some of the best news about child survival concerns immunization. It is a truly “high-tech” intervention. Immunizations won’t cure illness, but will prevent them. Until now, widespread immunization coverage was something reserved for developed nations. Third-world countries had severe problems relating to vaccine supply.

- They did not have the resources for ensuring the “cold chain”—the refrigerated storage and transport of vaccines from laboratory to child.
- Nor did they have access to sufficient quantities of vaccines.
- They often lacked enough trained personnel to administer the vaccines.
- Finally, they rarely had enough equipment.

Over the last few years, however, developing countries have made remarkable gains in aspects relating to vaccine supply. Few problems remain relating to the cold chain, equipment or personnel. Now developing countries are beginning to address aspects of vaccine demand.

- The mass media is being used to reach out to areas never previously vaccinated.
- Well-organized immunization outreach campaigns are vaccinating children in remote areas.
- Better planning is ensuring that there are a sufficient number of vaccines to immunize all children who arrive at an immunization outpost.

There is still far to go. The majority of the world’s nations have signed a Declaration of Universal Immunization by 1990. Incredible progress has been made. In the decade of the ’70s, the immunization rate of the world’s children hovered around 5%. Data from 1985 now indicates that number is closer to 40%. While universal immunization is desirable, coverage of at least 80% will disrupt disease transmission to such an extent that even those children who have not been immunized will still be protected.

That protection is sorely needed. Information provided by the Expanded Program on Immunization estimates that, *excluding* China, deaths from vaccine-preventable diseases number nearly 3½ million in an average year. Nearly a quarter of all childhood deaths worldwide are due to children not being adequately immunized.

There are six major causes of death from vaccine-preventable diseases. Diphtheria, pertussis (whooping cough), tetanus (lockjaw), tuberculosis, polio and measles all have their special way of not only killing children, but crippling and blinding them.

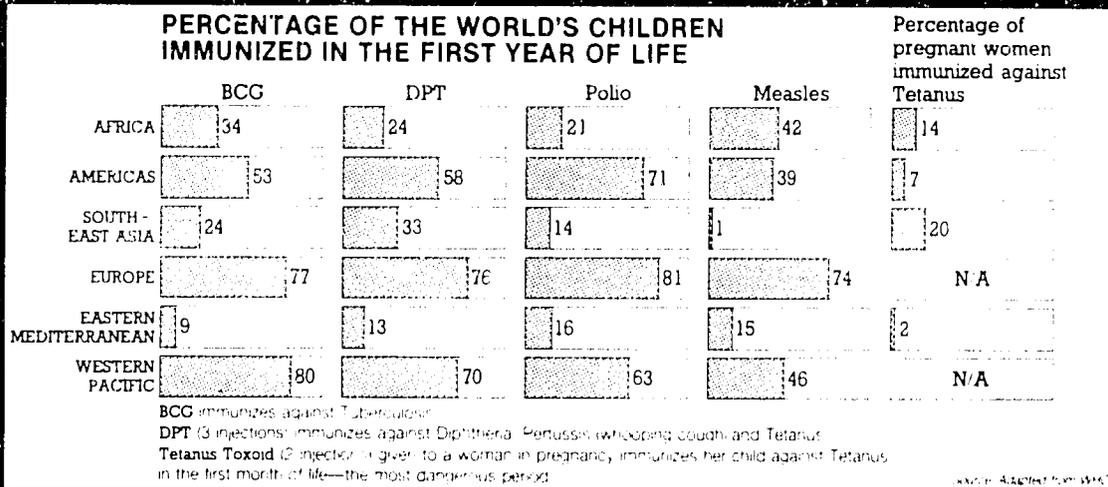
- **Diphtheria** often causes asphyxiation due to a membrane it forms in a child’s throat. The toxins it produces damage the heart and nervous system.
- Contracting **pertussis** means suffering from a debilitating illness. Death may be less common for this disease than for some others, but malnutrition, brain damage and pneumonia are common complications.
- **Tetanus** is primarily a killer of newborn children. Babies are generally infected when the umbilical cord is cut with a contaminated instrument, or when infected materials, such as dung, are placed on the cord to help stop bleeding. This practice is common in many places of the world. The fatality rate for newborns with tetanus is virtually 100%.
- Brought under control in the developed world, **tuberculosis** is still lethal in the third world. It is especially dangerous for young infants. TB often attacks the bones, leaving children deformed and crippled.
- **Poliomyelitis** is the single greatest cause of lameness in the developing world. Nearly one quarter of a million children suffer from the paralysis caused by polio every year.
- By far the single most deadly killer of all the vaccine-preventable diseases, **measles** is responsible for nearly two-thirds of the toll. A child dies every 15 seconds from measles. Those that survive often suffer from complications of diarrhea, malnutrition, ear infections, blindness and encephalitis (en-cef-uh-LIT-is).

The way in which countries go about achieving immunization coverage is almost as varied as the countries themselves. Bolivia has mobilized “people’s health committees” for their immunization campaigns. Nigeria has set up immunization outposts in marketplaces, mosques,

churches and schools. Algeria conducted "catch-up" vaccination campaigns to raise the immunization rate to an acceptable level. It plans to maintain that higher rate. And Burkina Faso, using the slogan "one village, one health post," is providing basic immunization coverage in even the most remote villages. The campaigns may differ, but all countries are making strides in achieving universal immunization for their children.

Immunization World-Wide

Every year, five million children die and five million more are disabled by diseases which can be immunized against for \$5 per child. (UNICEF)



VACCINE-PREVENTABLE DEATHS

Estimated annual number of child deaths from the main diseases which can be cheaply immunized against:-

COUNTRY	Neonatal Tetanus	Measles	Whooping Cough	Total
India	298,000	782,000	189,000	1,269,000
Pakistan	132,000	163,000	66,000	361,000
Bangladesh	119,000	173,000	69,000	361,000
Indonesia	71,000	218,000	63,000	352,000
Nigeria	64,000	171,000	68,000	303,000
Mexico	31,000	57,000	19,000	107,000
Ethiopia	16,000	60,000	25,000	101,000
Zaire	21,000	45,000	19,000	85,000
Philippines	12,000	59,000	12,000	83,000
Brazil	28,000	34,000	18,000	80,000
Burma	20,000	43,000	16,000	79,000
Thailand	10,000	57,000	11,000	78,000
Vietnam	12,000	46,000	19,000	77,000
Kenya	9,000	37,000	15,000	61,000
Egypt	16,000	32,000	13,000	61,000
South Africa	11,000	35,000	14,000	60,000
Sudan	8,000	36,000	15,000	59,000
Afghanistan	11,000	27,000	11,000	49,000
Iran	17,000	19,000	9,000	45,000
Algeria	10,000	25,000	8,000	43,000
Morocco	10,000	21,000	5,000	36,000
Turkey	8,000	16,000	5,000	29,000
Colombia	9,000	14,000	6,000	29,000
Tanzania	6,000	7,000	6,000	19,000
Rep of Korea	5,000	10,000	2,000	17,000
All other developing countries	181,000	411,000	139,000	731,000
Grand total	1,135,000	2,598,000	842,000	4,575,000

Table excludes China Source: Adapted from WHO

1984-NEW STYLE CAMPAIGNS

New style immunization campaigns have this year revolutionised immunization coverage in:-

BRAZIL

where immunization rates have been lifted towards 90% by a campaign involving 450,000 volunteers manning over 90,000 immunization posts across an area larger than Western Europe

COLOMBIA

where almost a million children have been immunized on each of 3 National Vaccination Days - more than doubling the percentage of children immunized

NIGERIA

where a pilot campaign in the Owo area has increased immunization coverage from 9% to over 70% in preparation for the launch of a national campaign

INDIA

where campaigns in thousands of villages of Karnataka and Madhya Pradesh and in the majority of Delhi's poorer areas have boosted vaccination coverage to unprecedented levels

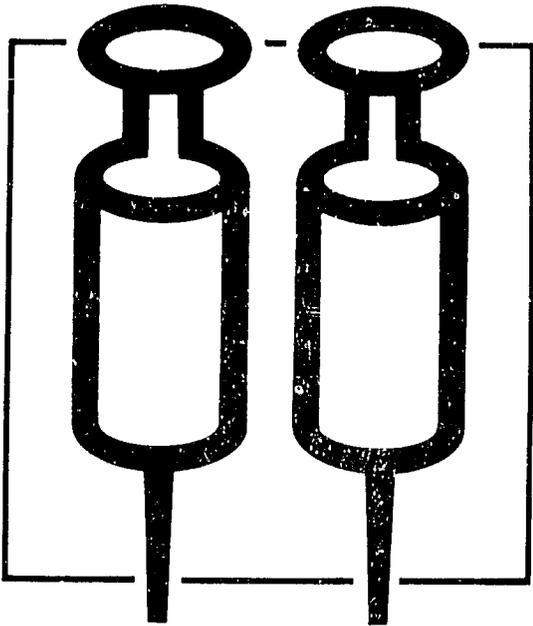
PAKISTAN

where the proportion of the nation's children immunized has risen from less than 5% to more than 25% in one year (end of 1984 target - 50%)

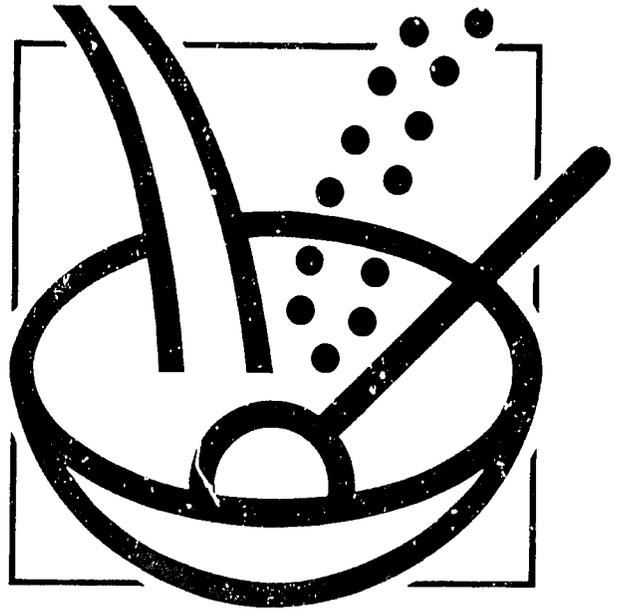
The strategies behind the successes:-

- Massive public education campaigns using every possible channel of communication to let parents know the importance of immunizing their children
- Taking immunization nearer to the people by setting up immunization posts in schools, parks, polling booths, mosques, churches, temples, bazaars and markets - as well as in clinics and health centres

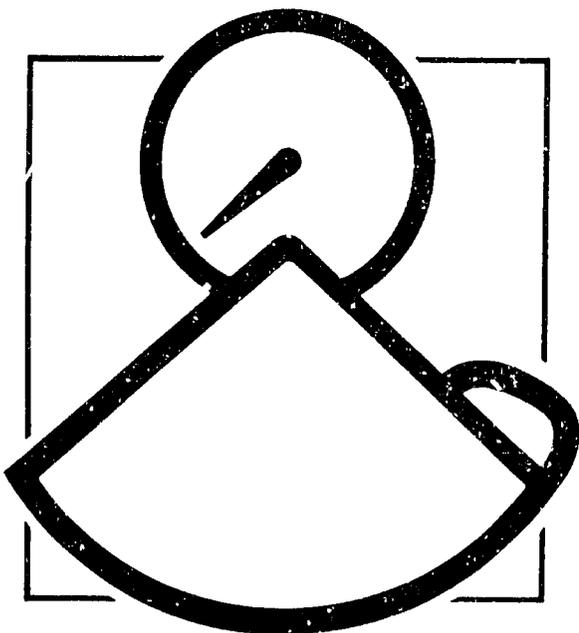
Unit One—World Health Overview



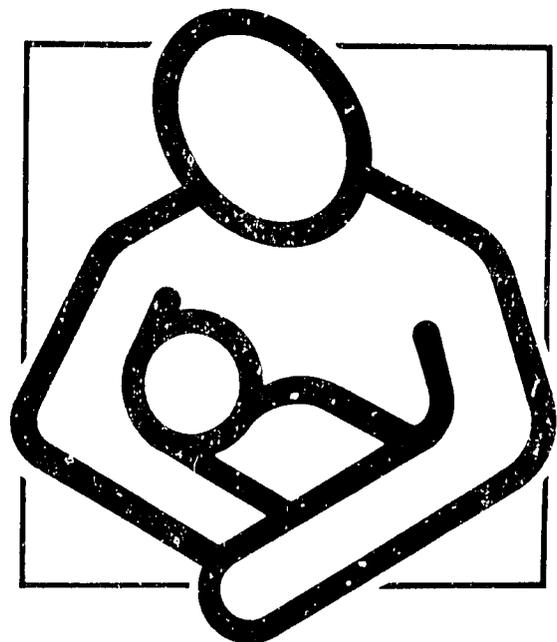
Immunization—now saving almost a million children's lives each year in the developing world.



Oral Rehydration Therapy—already saving half a million children each year, but could save 4 million.



Growth Monitoring—with up-to-date advice it could prevent at least half the child malnutrition in the world.



Breast-feeding—saves the lives and growth of millions if the trend to bottle-feeding can be stopped.

UNIT ONE

World Health Overview

Lesson Length: Two sessions of 45–60 minutes

Compatible Subjects: Geography, Art, Math, Social Studies, Language Arts, Health

Unit Objectives: Students will be able to:

1. Empathize with people living in conditions of poverty.
2. Identify some basic indicators of health.
3. Identify common health problems and their relationship to poverty.
4. Describe GOBI strategies.

Materials:

1. *Descent into Hunger*.
2. Newsprint and markers, if available.
3. **Optional:** *Children: Hunger and Hope—a Slide Show*; or *Child Survival Campaign for Life* (16mm or video). See Resource section.
4. **Optional:** Several bags of plain M&Ms.

Vocabulary:

Activity I:

- Developed Country
- Developing Country
- Third World
- Malnutrition

Activity II:

- Affluence
- Poverty
- Sanitation

Procedure:

In most of the third world—and much of the developed world—illness is closely linked to poverty. Since this link is so strong, we ask that you examine your attitudes towards poverty and developing countries before you begin these lessons. Please be sensitive to implications that “poor is bad” or “rich is good,” and consider the circumstances of the students in your classroom.

At some point before beginning the lesson, ask students to take the pretest/posttest. Make it clear that this quiz is for information only, and will not be graded. Tabulate the responses, and then compare to posttest results after students have been through the complete curriculum. Display the results to the class (see Closure and Evaluation Activities section).

Activity I: Introduction: Descent into Hunger/GOBI

A. As an introduction to living conditions around the world, begin by reading *Descent into Hunger*. It is best used as an imagery exercise, read aloud, with pauses for reflection. Originally written by Robert Heilbroner in 1965, the essay accurately describes the lifestyle of many poor persons in developing countries even today. (Some of the facts Mr. Heilbroner included in his essay have changed over the years. There are now five billion persons on the earth; three billion live in situations described in *Descent*. Communications have advanced; radio ownership in India in 1983 was reported by UNICEF to be 61 per 1,000 persons, up from four radios per 1,000 persons as reported by *Descent*.)

- B. Follow-up *Descent* with the questions listed at the end of the reading.
- What do your students *know* about living conditions around the world, and
 - How do they *feel* about those conditions?

- C. Role-play or discuss a scene suggested by *Descent*.
- Ask the students to portray/discuss what they would feel if their best friend were a hungry person.
 - Would the friend be healthy? Ask the students to discuss the illnesses they think their friend might suffer.
 - Discuss or show how the friend would receive care if he or she were ill.

D. Follow-up on the issues of health and illness in developing countries. Explain briefly that in situations where nutrition and sanitary disposal of human and industrial waste is not adequate, clean water is not available, and health facilities are not accessible, people often get sick. Common problems include:

- Malnutrition
- Diarrhea
- Diseases preventable by immunizations
- High rate of death among babies and young children

E. Despite the grim picture painted by *Descent into Hunger*, there is good news to be reported from many developing countries. Much is being done to improve the health situation of children throughout the world. Even without enough hospitals, doctors or nurses, the health of the world's children is being protected by relying upon four low-cost strategies called GOBI:

- growth monitoring
- oral rehydration therapy
- breastfeeding
- immunization

The strategies that make up GOBI are very effective at combatting the common problems of malnutrition, diarrhea, diseases preventable by immunization and high infant and child death rates.

- Growth monitoring (weighing) involves comparing the growth of a child to normal growth patterns. The mother will be able to tell if her child is getting enough to eat *before* the child becomes weak with malnutrition.
- Dehydration caused by diarrhea is the number one killer of children in the world. Oral rehydration (a sugar-and-salt solution) keeps children from losing too much water from their bodies when they have diarrhea.
- Breastfeeding provides the best possible food for babies and gives them the healthiest start in life.
- Terrible killer andcrippler diseases such as polio or measles cannot harm children providing the children have been immunized.

There are several advantages to relying on GOBI:

- It is fairly inexpensive. Even a poor country can incorporate GOBI into its health care system.
- Almost anyone, anywhere, can be trained to use GOBI. That means a mother can be as responsible for her child's health as a doctor.

F. Help the students visualize 20,000. One cubic foot of regular M&Ms has a little less than 20,000 pieces of candy. Ask the students to open a bag and count the number of pieces in one bag. How many more bags would they need to buy in order to have 20,000 M&Ms?

Colombia: immunizing 800,000

In the last few months, Colombia has immunized three-quarters of its young children against five major diseases in a massive campaign spread over three National Vaccination Days.

The campaign was the opening shot in the child survival revolution launched by Colombia's President Betancur earlier this year. Citing oral rehydration therapy, breast-feeding, growth monitoring and immunization, the President announced to the nation:-

"Thousands of children still die whose lives could be saved by very simple measures . . . I propose to all of you to take the decision to reduce infant mortality by half in the near future - thus avoiding the loss of 50,000 children a year."

At 8 a.m. on the morning of June 23rd, the President immunized the first child in the Presidential Palace in Bogotá. By 7 p.m. that evening, over 800,000 children had been vaccinated against measles, polio, diphtheria, tetanus, and whooping cough. And the turn-out increased with each vaccination day. In the process, the campaign also achieved its second major objective - strengthening the immunization system itself.

To achieve this result, over 120,000 volunteers were mobilized and over 10,000 vaccination posts were set up in schools, parks, town halls, market-places and health clinics. General-election style, the results were broadcast every two hours over 90 radio stations. At the immunization sites themselves, candy stalls, music groups, and fireworks provided a carnival atmosphere.

As in most countries of the developing world, Colombia's health services do not yet have the outreach to either create or meet a nation-wide demand for immunization. To overcome this problem, every conceivable organization in the country was asked to lend its resources to the campaign.

To create the demand, the country's biggest daily newspaper, *El Tiempo*, joined forces with the national broadcasting network Caracol to inform all parents about the three National Vaccination Days. On April 6th the campaign mascot - a cartoon character called Pitin, symbolizing the

healthy Colombian child - was born in the pages of *El Tiempo* and was soon adopted by 20 other newspapers. One of the country's largest private banks, the Banco del Estado, distributed many thousands of calendars showing the figure of Pitin next to the dates of the National Vaccination Days - June 23rd, July 28th and August 25th.

On the vaccination days themselves, popular entertainers broadcast hourly calls to immunization on the Caracol radio network - reaching an estimated 10 million mothers. Organizations from the the Boy Scouts to the Street Vendors Association reached out to their own constituencies. In the *barrios* of Bogotá, touring puppet theatres played dramas with immunization themes.

On each Sunday before the National Vaccination Days, priests in most of Colombia's 2,280 parishes gave sermons about child health and the importance of having children immunized. The Ministry of Education called on its 200,000 teachers to promote the campaign and the Ministry of the Interior requested all governors and the mayors of 950 municipalities to take the lead in local campaigns.

To ensure supply, the health services enlisted the support of the Colombian Red Cross Society, which trained more than 13,000 of its members to be vaccinators and fielded another 16,000 volunteers to help with organization and record-keeping. The United Nations Development Programme, WHO, and UNICEF provided the vaccines and syringes and helped maintain the 'cold chain'. Over 500 police and army medics joined the campaign and the Ministry of Defence made planes and helicopters available to get vaccines to remote immunization centres in all corners of the country.

Every parent bringing a child for immunization has been given a growth chart with the child's immunization record - plus advice on breast-feeding, nutrition, and the treatment of diarrhoeal illness.

(See next panel for the *El Tiempo* editorial commenting on this campaign.)

Activity II: Global Health Situation

A. Ask students what good health means to them. A student can record the replies on newsprint or on the chalkboard. Since we often think in terms of the negative effects of ill health rather than the positive effects of good health, this exercise may be difficult. One definition of good health is: Sound in body, mind or spirit; free from disease or pain.

B. Then ask the students to list some *risks* to health. As the students respond, write down their answers in the two major categories suggested by the following chart. Do not label the categories at this time.

Risks/Diseases of Affluence

cancer
heart disease and stroke
chemicals: alcohol, tobacco, drugs
obesity
injuries and accidents
problems of old age

Risks/Diseases of Poverty

malnutrition/starvation
infectious/contagious disease
lack of sanitation
unclean water
injuries and accidents

When the class has had enough time to respond, go back and ask them to determine what label each list should have. Ask them who is most likely to experience each set of risks or diseases. Help your class fill in the lists using the suggestions provided.

Risks to people's health differ greatly depending upon where they live.

- One out of four infants in the very poorest countries of the world will not live to enjoy its first birthday.
- In those same countries, only two out of three children will live to be five years old.

That translates into 15 million children's deaths a year. All over the world, every day, 40,000 children die. Most of that death is a result of the "diseases of poverty" and resultant living conditions of the family.

C. The effects of "diseases of poverty" are vividly reflected in statistics such as life expectancy and infant mortality. The class may now examine some representative statistics listed on the Health Indicator Chart that provide a look at health and living conditions around the world. Introduce the activity by providing the students with the following information:

The Health Indicator Chart compares statistics related to health and well-being in Burkina Faso, a developing country, and Sweden, a developed country. Keep in mind that the international organizations that collect this kind of information must rely to some degree on the reports of the individual countries. Many governments want their countries to appear in the best possible light; therefore, some statistics in charts of this type are under- or over-reported or are made to appear more positive than they really are.

Remember that this chart represents certain conditions at one brief point in time. Use it as a starting point and as a basis for comparison. When you study the chart, try to keep in mind that the two countries listed represent nations at two different points in the process of their development. Many nations are making relatively good progress within a brief period of time. Consider the cultural, sociological and geographical conditions that might affect that progress.

D. Locate Burkina Faso and Sweden on a world map or globe. (Burkina Faso was formerly called Upper Volta.)

How does Burkina Faso's projected **Population** compare to that of Sweden now? And by the year 2100? (Burkina Faso will quadruple its population; Sweden's population will actually decrease. As a comparison, if the population of the United States were to quadruple by 2100, we would have 1,064,000,000—over one billion people.)

- How do the students think this population growth will affect the respective countries?

Define **Life Expectancy** as the number of years newborns could, on the average, expect to live if they all shared equally the health risks present in their country at the time of their birth. The Health Indicators Chart subdivides life expectancy by sex.

- Compare the life expectancy of Burkina Faso with that of Sweden.
- Why do the students think there are such great differences?
- Do any of the other Health Indicators give a clue?

The **Infant Mortality Rate (IMR)** is the number of deaths of infants under one year per 1,000 births. The IMR is generally considered the basic indication of how well a country is meeting the most basic demands of its people. An IMR under 50 (China's IMR is just 50) is considered acceptable.

- Have students locate the IMR column on the chart.
- Has Sweden achieved this rate? Has Burkina Faso?
- How do the rates for both countries in 1985 compare to the rates for 1960? Point out the differences between developing and developed nations.
- Are the IMR and life expectancy figures related? Why?
- Do the students think that the IMR and literacy rates are related? Why or why not?

The **Gross National Product (GNP)** is the total value of all goods and services produced by a country in one year. The *per capita* GNP is the average for each individual in a country for one year.

- Relate the GNP to the health indicators already discussed.
- How does GNP relate to the rate of population growth?
- Life expectancy?
- Literacy?
- Infant mortality rate?

E. Ask the students to recall *Descent into Hunger*. How do the students think the situation described in *Descent* would be reflected by statistics in the Health Indicator Chart? What do they suppose the IMR would be? The literacy rate? The life expectancy? How do they think children living in situations such as those described by *Descent* would define good health? Would the definition be similar to or different from the definition given by the students at the beginning of the class?

Enrichment Activities

—To help visualize 20,000 (the number of children that can be saved through GOBI interventions daily), ask students to investigate the total number of students in area high schools. Does it equal 20,000? How many additional schools would be needed to reach that figure? Make a chart of the schools and their populations. Or ask students to choose from the state map one or several small towns whose population equals 20,000. Describe the towns.

—Students may choose to research the lives and times of Eugene O'Neill, Upton Sinclair, and/or Charles Dickens. What was it about the times in which these men lived which inspired them to write about poverty and injustice? Compare and contrast living conditions of the "developed" countries in which these men lived with the living conditions of developing nations today.

—Encourage the students to get involved by writing to an international relief and development agency such as UNICEF, CARE or OXFAM for more information about other nations.

Arrange for a Returned Peace Corps Volunteer (RPCV) to speak to the class. Suggested topics include: everyday life in a developing country, or specific problems facing the developing world in general.

—INSA and Lasting Links can be contacted for information on development education projects that link Americans directly to programs in developing nations (see Resource section).

—Ask students to write an essay on their reactions to the following quote by Eugene O'Neill. Do they agree or disagree? Why?

"The child was diseased at birth, stricken with a hereditary ill that only the most vital men are able to shake off. I mean poverty—the most deadly and prevalent of all diseases."

Older Grades

—Encourage the students to investigate broad issues related to child survival. Ask students, whether alone or in a small group, to research topics such as women's literacy, land reform or redistribution, child labor, access to credit (especially for women) and maternity leave policies. How can these issues affect the quality of life for a family, or child survival?

—Ask students to do some research into living conditions of developed countries one hundred or more years ago. Compare and contrast those conditions to developing countries today. What conclusions do the students draw?

—Using the Health Indicator Chart as a guide, ask the students to collect as many of the statistics as possible for their own community. What is the economic, social, racial, ethnic and religious makeup of their community? How many health care workers are there? They may need to complete this section based on statewide statistics instead of city or county. Good information sources might be the state or county health department and the local library. Ask the reference librarian for other sources. What kinds of problems are encountered in trying to collect and interpret the various statistics? What are the most recent statistics available? Why does it take so long to collect and publish this kind of information?

HEALTH INDICATOR CHART

HEALTH INDICATOR	BURKINA FASO		SWEDEN	
1986 Population ¹	7.1 mil.		8.4 mil.	
2000 Population ¹	10.5 mil.		8.1 mil.	
2100 Population ¹	30.0 mil.		8.0 mil.	
Life Expectancy 1983 ²	F	M	F	M
F = female	46	43	80	75
M = male	Average = 45		Average = 77	
Infant Mortality Rate (IMR) ³				
1960	230		17	
1985	145		6	
Gross National Product (GNP) (1983) per capita in U.S. dollars ⁴	\$180		\$12,470	
Percent of Population with access to clean water ⁵	14%		99%	

¹ 1986 World Population Data Sheet

² 1985 World Development Report

³ 1960 IMR from State of the World's Children Report 1986

1985 IMR from State of the World's Children Report 1987

⁴ 1985 World Development Report

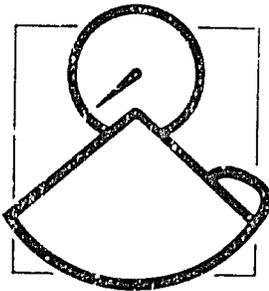
⁵ World Military and Social Expenditures 1983

The child protectors

Parenthood is not a state of being; it is a job to be done. And on that job depends the well-being of today's children — and tomorrow's world. But like anyone else with an important job to do, parents need information to enable them to do it well.

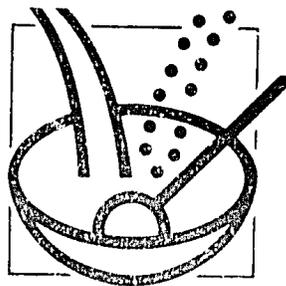
In the poor world, being a parent is doubly difficult. For poverty means that many millions of children die and many millions more fail to grow to their full mental and physical potential. But according to UNICEF, just four simple low-cost methods could now give parents the power to protect their children from some of poverty's worst effects and so cut malnutrition and deaths by half.

Reaching out to inform and support parents in using this knowledge could therefore help to bring about a revolution in child survival and development. The four key messages singled out by UNICEF are:-



Growth Checking

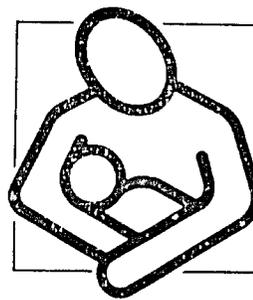
Checking a child's weight gain every month can warn of poor growth long before malnutrition begins. And at that stage, basic advice on low-cost ways to improve nutritional health — advice such as continuing to breast-feed, introducing other foods at about the age of five months, feeding a child more frequently, adding oils and fats to enrich weaning foods, using the cheapest green vegetables each day — can enable most mothers to prevent malnutrition even in poor families.



Oral Rehydration

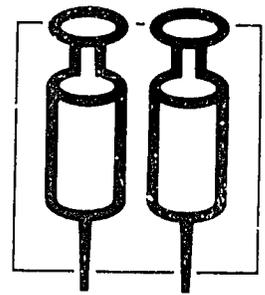
Diarrhoea takes away the appetite, reduces the absorption of food, burns up calories, drains away nutrients, and so causes malnutrition. If the losses continue, dehydration sets in. And with over 4 million victims a year, dehydration is the single biggest killer of children in the world today.

If parents know the importance of feeding the child plenty of food and fluids — instead of withholding them — then the nutritional health of millions of children could be improved. And if parents also know when and how to use oral rehydration therapy (with either a 10-cent sachet of pre-mixed salts or a home-made solution) then the lives of most of those 4 million children could now be saved.



Breast-feeding

In poor communities, illness and death have been found to be two or three times more common among babies who are bottle-fed. Breast-milk provides perfect nutrition and a degree of protection against common childhood infections. Bottle-feeding, often means inferior artificial substitutes overdiluted with unclean water in unsterile containers. In many urban areas, bottle-feeding has increased steeply in recent years. If parents knew about the importance of exclusive breast-feeding for the first few months, and continued breast-feeding into the second year of life, and if mothers were supported in taking on that responsibility — then the health of many millions of infants could be protected at very low cost.



Immunization

Vaccine-preventable diseases kill approximately 3.5 million children a year, disable a similar number, and are a major cause of malnutrition. In the last two years, a number of countries have shown that mobilizing every possible resource to make immunization more available — and to empower parents with information about the when and the where and the why of vaccination — can result in a doubling and trebling of immunization coverage. Immunization against all six major vaccine-preventable diseases costs approximately \$5.

“Descent into Hunger”

“To begin to understand economic development, we must have a picture of the problem with which it contends. We must conjure up in our mind’s eye what underdevelopment means for the two billion human beings for whom it is not a statistic but a living experience of daily life. . . . It is not easy to make this mental jump. But let us attempt it by imagining how a typical American family, living in a small suburban house on an income of about twenty-five thousand dollars, could be transformed into an equally typical family of the underdeveloped world.

“We begin by invading the house of our imaginary American family to strip it of its furniture. Everything goes: beds, chairs, tables, television set, lamps. We will leave the family with a few old blankets, a kitchen table, a wooden chair. Along with the bureaus go the clothes. Each member of the family may keep in his “wardrobe” his oldest suit or dress, a shirt or blouse. We will permit a pair of shoes to the head of the family, but none to the wife or children.

“We move into the kitchen. The appliances have already been taken out, so we turn to the cabinets and pantry. The box of matches may stay, a small bag of flour, some sugar and salt. A few moldy potatoes, already in the garbage can, must be hastily rescued, for they will provide much of tonight’s meal. We will leave a handful of onions, and a dish of dried beans. All the rest we take away. The meat, the fresh vegetables, the canned goods, the crackers, the candy.

“Now we have stripped the house: the bathroom has been dismantled, the running water shut off, the electric wires taken out. Next we take away the house. The family can move to the tool shed. It is crowded, but much better than the situation in Hong Kong, where a United Nations report tells us, ‘It is not uncommon for a family of four or more to live in a bedspace, that is, on a bunk bed and the space it occupies—sometimes in two or three tiers—their only privacy provided by curtains.’

“But we have only begun. All the other houses in the neighborhood have also been removed: our suburb has become a shantytown. Still, our family is fortunate to have a shelter; 250,000 people in Calcutta have none at all and simply live in the streets. Our family is now about on a par with the city of Cali in Colombia, where, an official of the World Bank writes, ‘On one hillside alone, the slum population was estimated at 40,000—without water, sanitation, or electric light. . . .’

“And still we have not reduced our American family to the level at which life is lived in the greatest part of the globe. Communication must go next. No more newspapers, magazines, books—not that they are missed, since we must take away our family’s literacy as well. Instead, in our shantytown we will allow one radio. In India the national average of radio ownership is one per 250 people, but the majority of radios is owned by city dwellers, so our allowance is fairly generous.

“Now government services must go. No more postman, no more fireman. There is a school, but it is three miles away and consists of two classrooms. They are not too overcrowded since only half the children in the neighborhood go to school. There are, of course, no hospitals or doctors nearby. The nearest clinic is ten miles away and is tended by a midwife. It can be reached by bicycle, provided that the family has a bicycle, which is unlikely. Or one can go by bus—not always inside, but there is usually room on top.

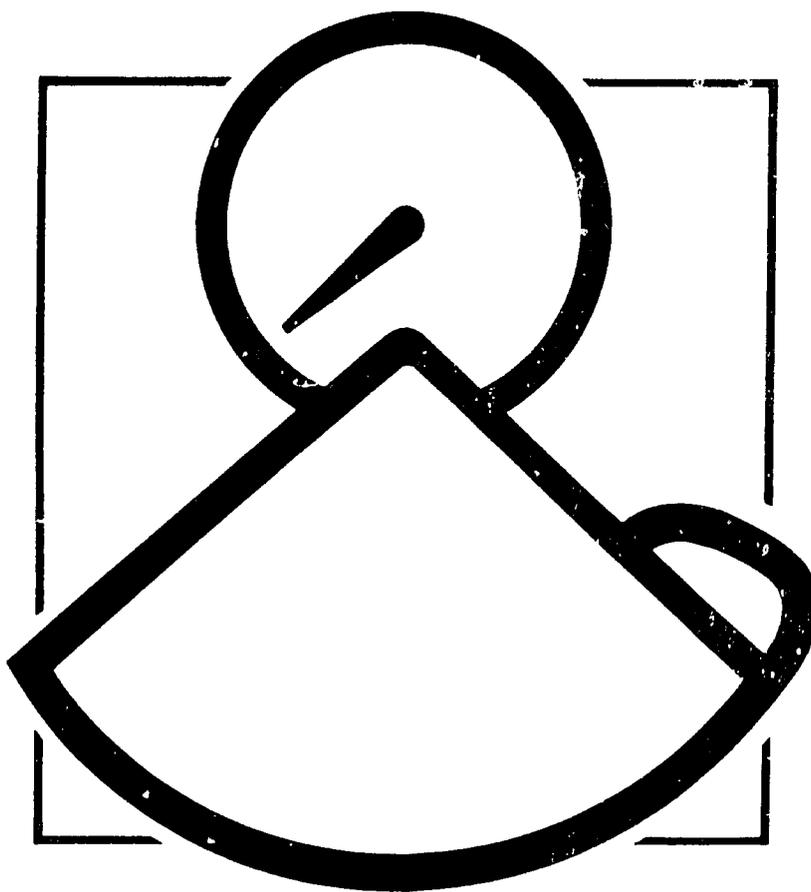
“Finally, money. We will allow our family a cash hoard of five dollars. This will prevent our breadwinner from experiencing the tragedy of an Iranian peasant who went blind because he could not raise the \$3.94 which he mistakenly thought he needed to secure admission to a hospital where he could have been cured. . . .”

Written by Robert Heilbroner in *The Great Ascent*, Harper & Row, 1963. Reprinted from materials produced by Church World Service for the National Committee for World Food Day.

Discussion Questions

1. What did you hear (read) about? What impressed you the most? How did it make you feel?
2. Talk about the things in life that people share throughout the world. Examples include: loyalty, love, nationalism, culture, religion, etc.
3. What problems does this family face that are similar to those of your own family? What problems are different?
4. Have any of the students seen living situations similar to what is described in *Descent*? What did they think about it?
5. If students were faced with these conditions, what would they like to see changed first? What would they do, or need, to help that change occur?

Unit Two—Growth Monitoring



Growth Monitoring—with up-to-date advice it could prevent at least half the child malnutrition in the world.

UNIT TWO

Growth Monitoring

Lesson Length: 45–60 minutes.

Compatible Subjects: Math, Language Arts, Nutrition, Health, Art, Social Studies, Home Economics, Family Life

Unit Objectives: Students will be able to:

1. Describe the inequity of food distribution.
2. Explain the necessity for growth monitoring.
3. Illustrate the use of the road-to-health chart and/or arm circumference band.
4. Identify methods to increase weight in undernourished children.

Materials:

1. Road-to-Health Chart and Growth Monitoring Activity for each student.
2. Arm Circumference Band Patterns, crayons, scissors, paper or pliable plastic.
3. World map (for reference).
4. Supply of peanuts (or dried fruit, etc.) and paper cups.

Vocabulary:

Activities I and II:

- Growth Monitoring
- Malnutrition
- Stunting

Procedure:

Activity I: Population/Food Distribution

A. Ask the students to divide into groups representing the world's continents and relative population distribution.

Continents	% of Students	Students No. = 30	Students No. = 25	Students No. = 20
Asia	58%	18	14	11
Africa	11%	3	2	2
Eastern Europe and USSR	8%	2	2	2
Latin America	8%	2	2	2
Western Europe	8%	2	2	2
North America	6%	2	2	1
Oceania	1%	1	1	0

(If the numbers in your class differ from the examples given, you can figure the distribution easily. Multiply the number of students in your class [ex.: 27] by the percentage [ex.: 11%], expressed in decimal form, of the number you wish to compute. Ex.: $27 \times 0.11 = 2.97$. Naturally, round off to the nearest whole number.)

Is this the type of population distribution the students expected to see? Why or why not?

B. Distribute peanuts (or other food) as indicated by the chart. Each item of food will represent that continent's food supply. Please notice that there are more items of food than there are students.

Continents	% of Peanuts	No. of Pieces Class = 30	No. of Pieces Class = 25	No. of Pieces Class = 20
Asia	13%	5	4	3
Africa	2%	1	1	1
Eastern Europe and USSR	13%	5	4	3
Latin America	5%	2	2	1
Western Europe	35%	12	9	7
North America	27%	8	7	6
Oceania	5%	2	1	1

Encourage the students to express how they feel about this food/population distribution. Do they come up with alternative solutions? **Note:** Ask students not to eat until the exercise is over!

C. Ask the students to observe that there were actually more peanuts than there were students. Likewise, there is more than enough food to feed everyone in the world. While not all persons in other countries are hungry, some areas have less food than other areas. In areas where food is abundant (like Europe and North America), hungry people can still be found.

D. Discuss with students what they think could happen to the children living in areas where food is not readily available. How could this affect the children's ability to play, learn, grow? How strong will these children be? Will they be healthy? What do they think parents could do to enable their children to grow healthier? About one in ten infants in the developing world dies before its first birthday; in developed countries, the rate is closer to one in one hundred.

Activity II: Growth Monitoring

A. Preventing malnutrition is easier than curing it. Explain the concept of monitoring a child's growth while still healthy to detect a faltering in the growth curve before it becomes dangerous. The basic idea is "the older a child is, the more it should weigh." Explain that it is often hard to tell if a child weighs too little unless the child is weighed consistently. Malnutrition can stunt a child's growth so that the child *appears* to have a normal weight, but in fact lacks both the proper height and proper weight for his or her age. Monitoring children's growth through weighing has the advantage of:

- showing the pattern of weight gain or loss over time
- being very accurate.

B. Hand out the growth monitoring activity and ask the students to complete the charting exercise. *Optional:* If your school has access to a spring scale (much like a produce scale), it could be used to weigh dolls or other objects in a simulation exercise (spring scales may be obtained for a modest fee from TALC—see Resource section).

C. The class can construct arm circumference bands next. The pattern is shown on page 39. A stiff paper or flexible plastic such as an old window shade is the best choice for materials. Arm bands are very good indicators of a child's relative nutritional status. The circumference of children's arms changes very little between their first and fifth birthdays. "Baby fat" is slowly replaced by muscle, so arm bands can be used from the age of one till five. Arm bands have the advantage of:

- being simple to use
- being inexpensive to make.

They are so simple that in many countries school-age children screen the younger children for malnutrition. Students can wrap arm bands around their fingers and wrists, or take them home to measure the arm circumference of younger children. This will give them an idea about relative arm circumference sizes in well-nourished *vs.* poorly nourished children.

D. In the majority of cases of malnutrition, children need just:

- a little more food *or*
- a little more protein.

Growing children need proportionately more calories and protein than adults do. Usually, when mothers realize that their children are not gaining enough weight, they will be able to give their children the special attention and food they need to get them back on a proper growth curve. Do your students have any suggestions as to high-calorie or high-protein snacks children in developing countries might enjoy?

- Peanuts are widely grown in Africa.
- Fruits such as pineapples, mangos and oranges are available in many areas of third-world countries.
- Various foods made from soybeans are popular in Asia.
- Cocoa is a popular drink in South America and parts of Africa.
- Coconuts are found in Asian and Pacific countries.

Enrichment Activities

—Ask your class to participate in meal preparation and distribution to the homeless. Contact your local United Way branch for information.

—The class can write and produce a play dealing with hunger and its solutions. Suggested audiences: other classes, PTA, civic groups, etc. Again, any funds collected may be donated.

—The class may wish to become involved in the activities of a local food bank; check your phone book or the United Way.

—INSA will send the class-made arm circumference bands to India or Haiti for use by local children. Contact INSA (see Resource section) for details.

—Encourage the class to subscribe to SEEDS, a magazine produced by people concerned about hunger (see Resource section).

Older Grades

—Ask the students to investigate the definition, differences and treatments of the two major forms of malnutrition: kwashiorkor and marasmus. What is the origin of the names? Ask the students to write a creative essay about an imaginary child with kwashiorkor or marasmus.

—Encourage the students to write an essay on what it is like to feel hungry. This exercise will be more effective for those that volunteer to go on a one-day fast. Be sure and check with parents first.

—Ask the students to investigate the connection between their community and the global food industry. Students can interview farmers, canners, fishers, dairy workers, meat packers, food-industry people, or those involved in food transportation and distribution. For more ideas, read *Main Street, USA* (see Resource section).

—Ask students to investigate the hunger problem in their local area through interviews with local social service agencies, hungry or homeless persons, or guest speakers.

—For schools with video equipment, ask the students to produce “anti-hunger” ads. The students themselves can try to arrange air time on the local educational, public service or network stations. Radio ads may also be produced and aired.

—Select a small group to visit a food bank or soup kitchen and report their findings back to the larger group.

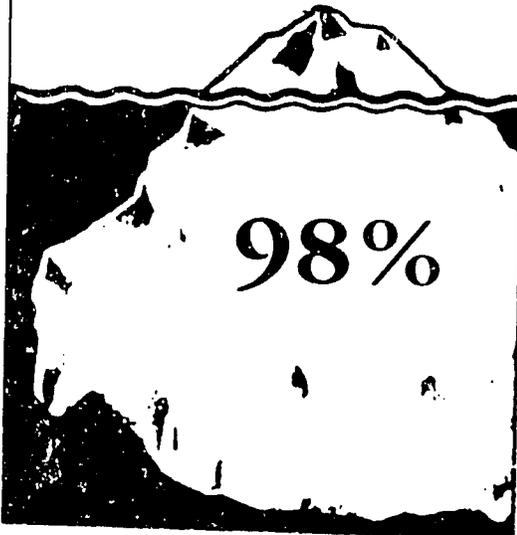
—Few persons in developing countries have an inexpensive source of animal protein. Ask students to research types of complementary vegetable proteins. Let them bring in examples to be sampled by classmates.

HIDDEN HUNGER

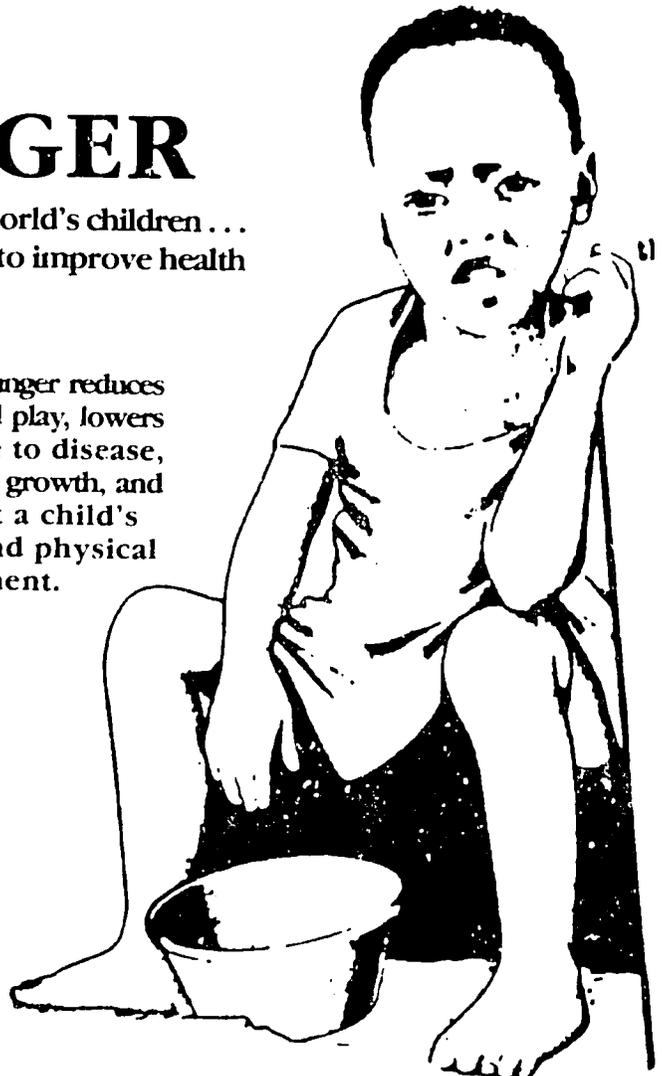
“Visible malnutrition affects less than 1% of the world’s children . . . but hidden hunger can still blunt all other efforts to improve health and education.”—(UNICEF)

ICEBERG HUNGER

98% of all child malnutrition is invisible to the untrained eye.



Invisible hunger reduces energy and play, lowers resistance to disease, holds back growth, and can affect a child’s mental and physical development.



Arm Circumference Band Pattern

PATTERN for Making ARM CIRCUMFERENCE BANDS

for use of health workers in the measurement of young children's arms in determination of degree of malnourishment.

USE PERMANENT INK MARKING PENS

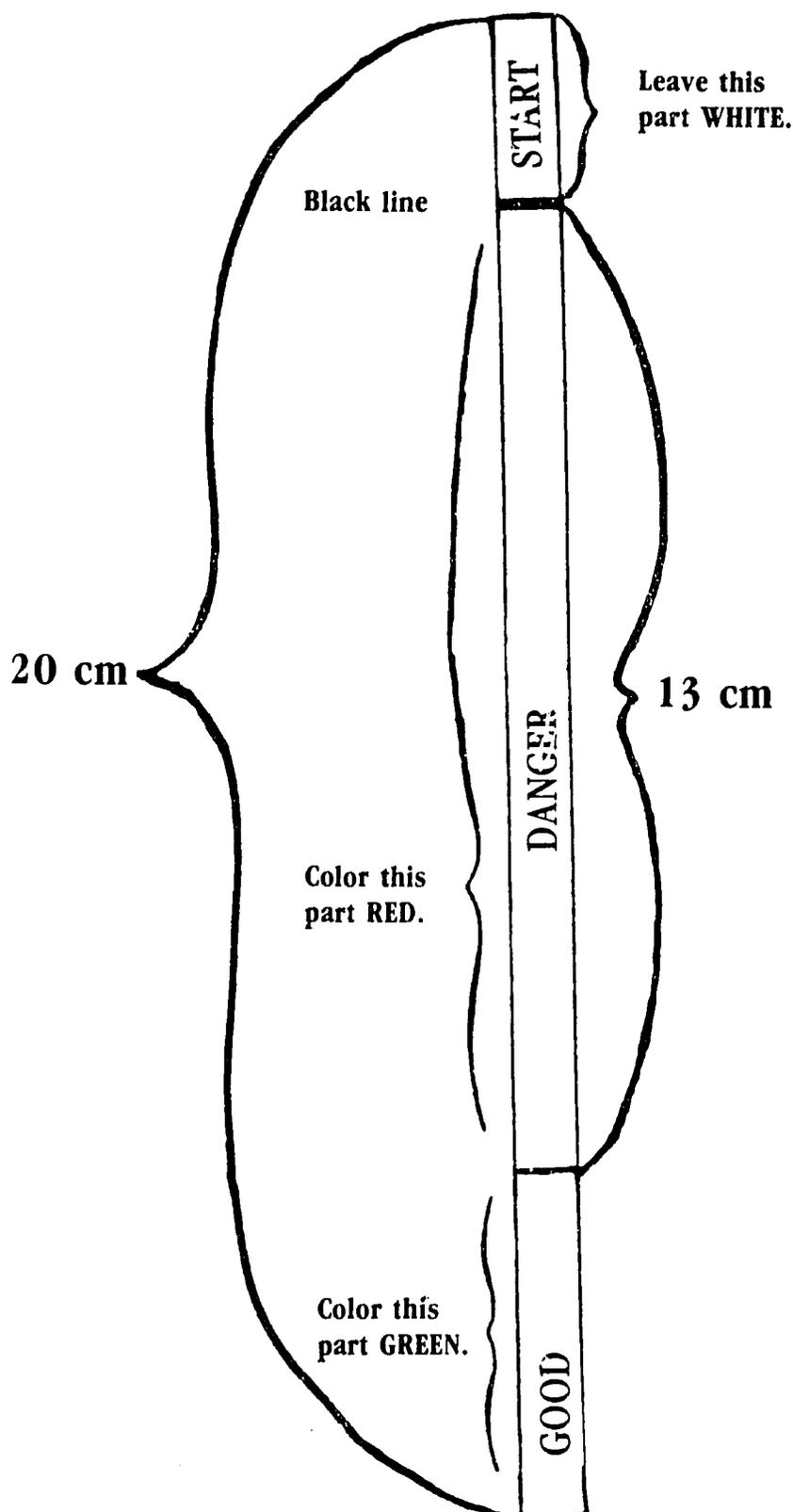
to color the red part, green part and black line. This pattern measures exactly the centimeters needed for uniform measuring bands; please follow the drawing's accurate measurements.

CUT basic 20 cm strip from sturdy, pliable plastic material, white or clear.

When babies are about 1 year old, they have quite a lot of fat under the skin of their arms. When they are 5 years old, there is much less fat and more muscle. *But the difference around the upper arm (the circumference) remains almost the same between the ages of 1 and 5 years.* If a child is malnourished, the circumference is reduced. By measuring the middle of the upper arm of children above the age of 1 year, using one of these arm circumference bands, one can find out whether a child is malnourished or not.

If a child measures in the GREEN, he is well nourished.

If in the RED, the child is too thin.



GROWTH MONITORING ACTIVITY

The following exercise is designed to give older students the opportunity to actually use a simple growth chart. Reproduce the chart and hand out to students with the following information:

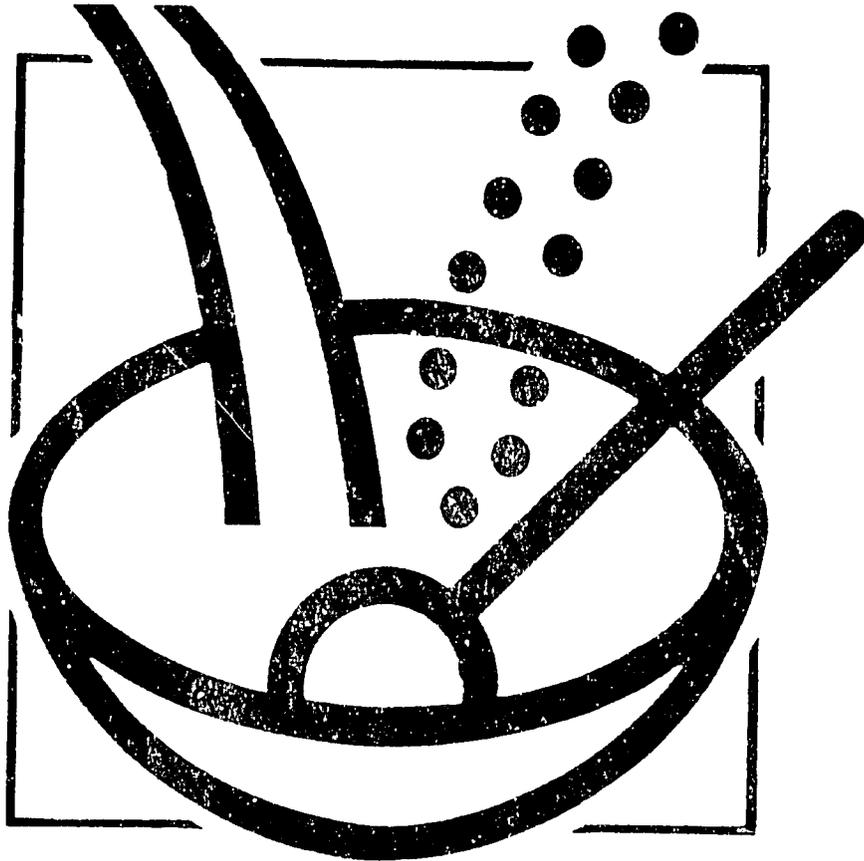
You are to graph the weights of the following three children on the growth chart. Each child was born on the same day, in the same year, in three different developing nations.

<u>JUAN</u>	AGE	WEIGHT	SITUATION
	2 mos	4 kg	breastfeeding
	4 mos	4.5 kg	breastfeeding
	6 mos	5 kg	starts solid foods
	8 mos	5.5 kg	eating mainly rice; stops breastfeeding
	10 mos	5.5 kg	father lost job; less money for food
	12 mos	6 kg	family lacks protein; no meat or eggs
	14 mos	6 kg	Juan gets measles
	15 mos	6 kg	Juan dies

<u>YUNG</u>	AGE	WEIGHT	SITUATION
	2 mos	4 kg	breastfeeding
	4 mos	5.5 kg	breastfeeding
	6 mos	6 kg	continues breastfeeding; eggs and mashed bananas added to Yung's diet
	8 mos	7 kg	breastfeeding; add grains and additional fruits
	10 mos	6.5 kg	diarrhea; mother gives breast milk and oral rehydration therapy solution
	12 mos	7.5 kg	Yung fed more often with variety of foods including
	14 mos	8.5 kg	meat, green vegetables, fruit, eggs, grain and milk
	16 mos	9 kg	

<u>DANJOUMA</u>	AGE	WEIGHT	SITUATION
	2 mos	4 kg	breastfeeding
	4 mos	5 kg	mother wants to be more modern; switches to formula mixed with local unclean water
	6 mos	5 kg	several bouts of severe diarrhea; mother concerned
	8 mos	6 kg	health worker helps mother learn to boil water for formula and teaches use of ORT for diarrhea; nourishing food given despite bouts of diarrhea
	10 mos	7 kg	Danjouma grows stronger
	12 mos	6.5 kg	diarrhea treated with ORT and additional food
	14 mos	7.5 kg	Danjouma gains weight, begins to thrive
	16 mos	8 kg	grows rapidly; mother feeds vegetables, fruits, fish, meat and eggs; growth is normal

Unit Three—Oral Rehydration Therapy



Oral Rehydration Therapy—already saving half a million children each year, but could save 4 million.

UNIT THREE

Oral Rehydration Therapy

Lesson Length: 45–60 minutes

Compatible Subjects: Language Arts, Science (Biology), Chemistry, Family Life, Home Economics

Unit Objectives: The students will be able to:

1. Identify the link between unsafe water and diarrhea.
2. Explain the link between diarrhea and dehydration.
3. Describe the need for fluid replacement while dehydrated
4. Demonstrate the ability to correctly make Oral Rehydration Solution.

Materials:

1. A supply of drinking water, sugar and salt, plus an 8-oz. glass or paper cup and teaspoon for each student, and optional food coloring and fruit juice.
2. Five water samples of various quality.
3. A ziplock bag, baby pattern, pail and ladle. (Optional: a Zebra plant.)
4. (Also optional: UNICEF film *Journey for Survival*.)

Vocabulary:

Activities I and II:

- Contamination
- Dehydration
- Diarrhea
- Oral Rehydration

Procedure:

Activity I: Unsafe Drinking Water

A. To help explain why some people drink contaminated water, begin the lesson by displaying samples of water to the students. They can be placed in any small food jar. One sample should be obviously muddy, one should have particles (dust, confetti, etc.) floating in it, one should be dyed with food coloring, and the fourth sample should be flat tonic water or salt water. The final sample should be composed of clear water. Although both clear samples are safe to drink (if the jars are clean and treated water is used), assume that the tonic or salt water sample is contaminated.

B. Engage the students in a discussion of which water sample they would choose if they were thirsty. Why do they choose one sample over another? Can the students guess what differences might be between the two clear samples? How could they tell? Let them smell or taste the two clear samples.

In this exercise, the “contaminated” water tastes different from the “pure” water. However, water can often be heavily contaminated and not look, smell or taste any differently from clean water. Persons living in countries where the water sanitation is poor may be drinking contaminated water even if it comes out of a faucet and tastes good. People may not be aware of, or may be skeptical of, the notion that “animals” or bacteria too small to be seen could exist, much less cause disease.

C. Explore with the students the difficulty in obtaining clean water for most of the world's citizens. Rural people may have to walk for several miles to get to a water source. If firewood is also scarce (as is often the case in arid lands), people will not be likely to use their precious cooking fuel to boil and disinfect their water.

D. (Optional) If *Journey for Survival* is available, show it now. Explore reaction to the film and its subject matter. What would it be like to be a child or woman in areas where water is scarce?

Activity II: Dehydration/Oral Rehydration

A. Ask the students what they think is the outcome of drinking impure water. Generally, it is an intestinal infection manifested by diarrhea. While diarrhea can be caused by other things (ingesting poisons, heavy metals, too much fiber or too many laxatives), contaminated food and especially water is the most common cause. Everyone gets diarrhea at some time or other. Explore with them how they felt when they had diarrhea. Could they go to school? Did they feel like playing? Studying? What did their parents or doctor recommend for treatment? Why?

B. A graphic demonstration of the effects of diarrhea upon a small child's body may be made by presenting the following demonstration. Following the enclosed model (see p. 49), trace the child's outline on a large ziplock bag. Poke a drainage hole in the bottom of the bag. When filled with water, it will represent a healthy child. When the bag is zipped while draining, the picture of the child will shrivel, approximating actual effects of severe dehydration. Ask the students what they think will happen when there is no more water in the bag/child? What do they suggest? Keep refilling the bag with water as it drains, explaining that as long as the liquids are replaced, the diarrhea will stop after a while. The drainage hole can be pinched closed to demonstrate the point.

(Optional) Dehydration may also be illustrated through the use of Zebra plants, which are very sensitive to the effects of lack of water. Compare two Zebra plants over the course of one week. Water one and withhold water from the other. What happens?

C. Gearing your explanations to your students' level, explain why a little sugar and salt in the water will work better than plain water (refer to the teacher's guide for a more detailed explanation). Ask students to make oral rehydration therapy (ORT) solution according to the following recipe:

1 glass water (about 8 oz.)

A little salt at the end of a spoon—less than 1/4 tsp.

1 level teaspoon sugar

Give the students a copy of the ORT handout.

Ask students to mix in the salt first and then taste it: the solution should taste no saltier than tears. Add sugar and ask them to taste the solution now. Expect a few "ughs"; the sweet and salty taste takes a little getting used to. Ask the students if it really tastes bad or just strange. Could they get used to it? Add food coloring and a little fruit juice (lemon, lime, etc.); the students will have just made a homemade version of Gatorade.

Enrichment Activities:

—As a project to increase awareness of some problems with water worldwide, ask students to go home and try to live, for one day, on six liters (1½ gallons) of water. This must be used for *all* their needs, including cooking, bathing, and dishwashing. Ask students to record their experiences and share them with the class.

—The Peace Corps works with water projects all over the world. Invite a returned Peace Corps Volunteer involved in one of these projects to speak to the class (see Resource section).

—Make hand puppets to teach villagers in India about oral rehydration. A puppet show may also be presented to other students or parents. Contact INSA for a Puppet Manual and details on shipping puppets (see Resources section).

—Ask groups of students to make a collage or bulletin board which expresses their understanding of, and feelings about, water. Themes to be examined include fishing, drinking, recreation, cleanliness, and transportation. The collage or bulletin board can be used as a kickoff point for further discussion.

Older Grades:

—Visit a local water-treatment plant. Let students see how water is made safe for drinking in their home community. If only a few students can go, ask them to make a report to the class.

—Visit a local sewage-treatment plant, and let students see how waste products are rendered safe. Ask them to research other ways to safely dispose of waste (i.e.: latrines, septic tanks).

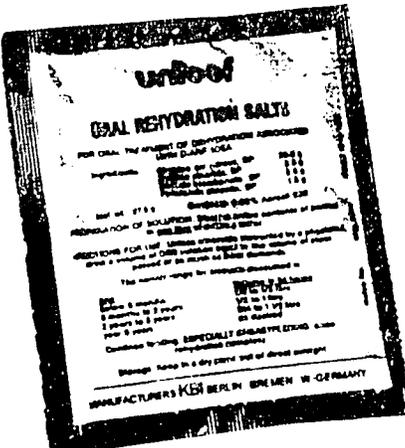
—Ask students to research various ways water may be made fit to drink (filtration, chlorination, boiling, sedimentation, distillation, desalinization). Ask them to demonstrate these procedures in class, and provide descriptions of how effective they are.



Selling Survival

Dehydration caused by diarrhoea is the biggest single killer of children in the modern world and diarrhoea itself is one of the major causes of nutritional loss and poor growth. Now, dehydration can be prevented and nutritional losses minimised by a revolutionary new technique called Oral Rehydration Therapy (ORT).

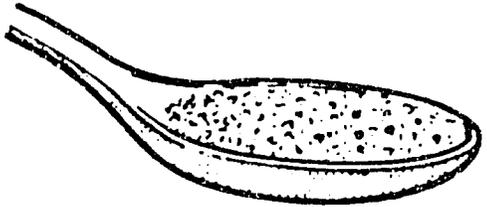
To prevent dehydration, oral rehydration salts can be made at home from ordinary household ingredients. To prevent - or treat - dehydration, sachets of the salts made up to the precise WHO/UNICEF formula now cost only a few cents each. But the problem is how to make them available to millions of parents throughout the world. The sachets, says UNICEF, should be household items - available from every corner shop like soap, batteries, razor-blades or Coca-Cola. - *The State of the World's Children* report 1985 (UNICEF).



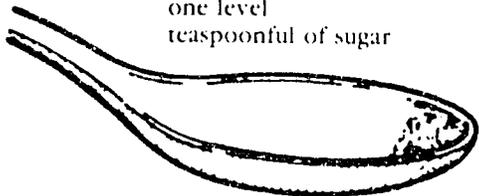
Artist: Hector Catalina

ORT: Oral Rehydration Therapy Solutuion

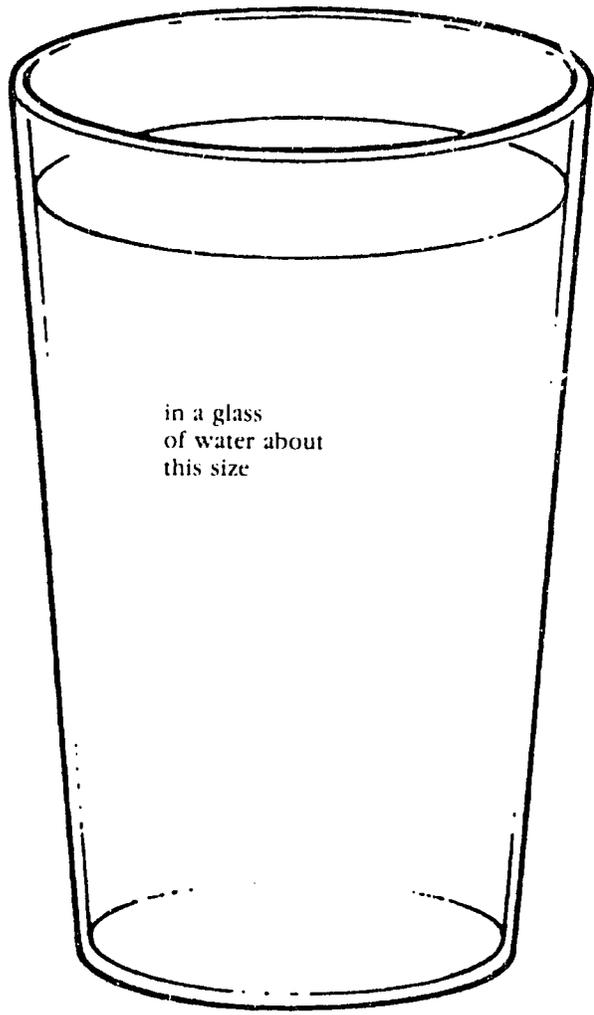
MIX: SUGAR + SALT + WATER



one level
teaspoonful of sugar



SALT
+ a little salt
at the end of a spoon



in a glass
of water about
this size

+ one glass of water

Show the students the size of the spoon to use, the size of the glass.

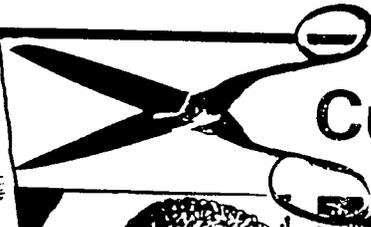
Make the mixture in the glass and taste it.

Have the students make a glassful and taste it themselves.

The solution will not work unless you use the right amounts. Always taste the solution. It should not taste more salty than tears; if it does, throw it away and mix it again.

Baby Pattern for Dehydration Demonstration





Cut here to save 5 million lives



In 1981 about 15,000 children died every day from diarrhoeal diseases which drained life-sustaining fluids and salts out of their bodies.



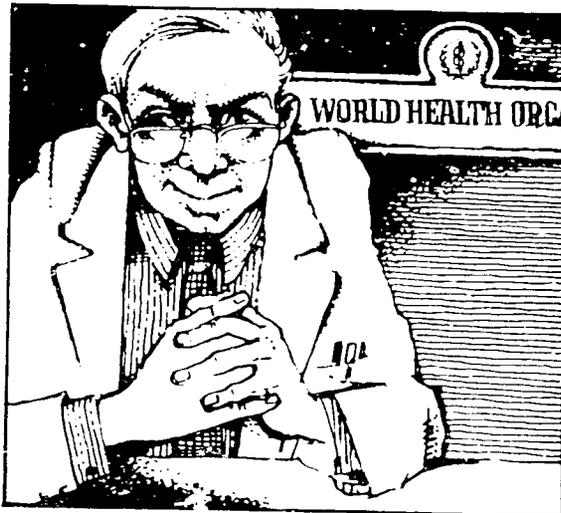
Replacing the fluids by intravenous drips is an expensive cure available to very few.



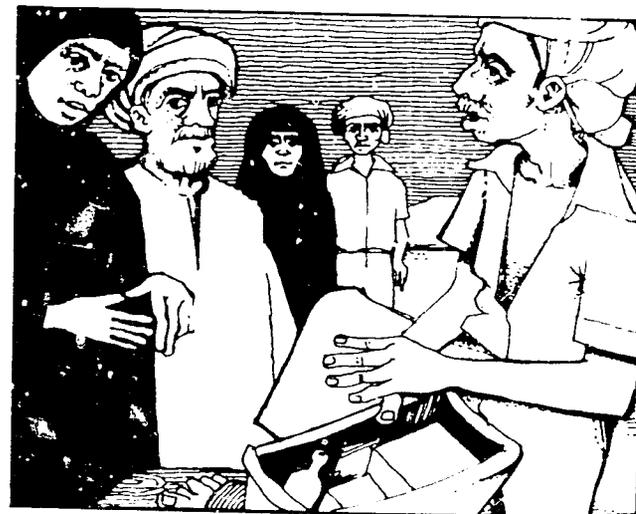
So scientists in Asia came up with a new cure based on salts and sugar costing only a few cents.



Now many countries are using locally produced salts which can be dissolved in boiled and cooled water and administered by mouth.

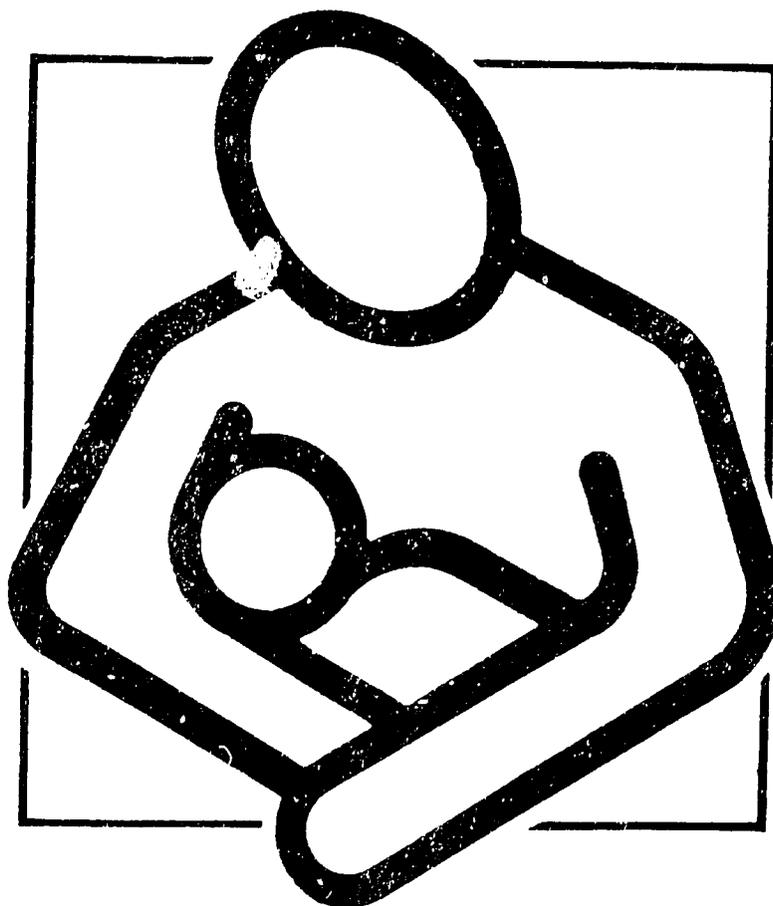


Studies on this treatment show infant deaths reduced by 90 per cent. 'If oral rehydration can begin early and preferably at home' says the World Health Organization, 'then very few children should die.'



The salts can be made available to all children through primary health care workers in every community in the developing world. They are the link between what science knows and what people need.

Unit Four—Breastfeeding



*Breastfeeding—saves the lives and growth of millions
if the trend to bottlefeeding can be stopped.*

UNIT FOUR

Breastfeeding

Lesson Length: 30-45 minutes

Compatible Subjects: Biology, Nutrition, Health, Family Life, Home Economics

Objectives: The students will be able to:

1. Describe at least two advantages/disadvantages of breastfeeding babies.
2. Identify at least two disadvantages/advantages to bottlefeeding, especially in developing countries.
3. Taste various types of infant milks.

Materials:

1. Breastfeeding handouts.
2. Various samples of milks used for infant feeding.

Vocabulary:

Activity I and II:

- Breastfeeding
- Weaning

Procedure:

Activity I: Brainstorming Advantages/Disadvantages

Ask the students as a group to list the general advantages/disadvantages of breastfeeding and the general advantages/disadvantages of bottlefeeding on the board using "brainstorming" technique.

When they are finished, ask them to list which advantages of bottlefeeding might not be present in developing countries, which disadvantages of breastfeeding might not be present in developed countries, and so forth. Engage the class in a discussion of why mothers in other countries would choose bottlefeeding over breastfeeding and why mothers here would do the same. Explore the similarities and differences. Distribute Breastfeeding handouts.

Activity II: Breastmilk Substitutes

Students can research some alternatives to breastmilk. A session where various kinds of milks are sampled could be arranged. Examples of milks to be sampled may include:

- regular cow's milk
- goat's milk
- commercial baby formula
- soy milk
- a facsimile of breastmilk (can be made by diluting skim milk: 2 parts milk, 1 part water)
- cow's milk modified for human infant consumption

Two formulas may be used to modify cow's milk for infant consumption. The formulas are to be mixed in a drinking glass for correct sugar/fluid proportions.

- 2 parts cow's milk, 1 part boiled water, 1 teaspoon sugar
- 2 parts canned evaporated milk, 3 parts boiled water, 1 teaspoon sugar

Enrichment Activities:

- Ask the students to research an infant's food needs from birth to two years of age, and share the results with the class.
- As a group project, the students can prepare a chart or poster that represents a baby's growth in the first two years. This poster would be appropriate for class or bulletin board display.
- Using popular magazines, ask students to do some informal research on the number of times babies are shown bottlefeeding *vs.* breastfeeding. The pictures may then be used to make an infant feeding collage.

Older Grades:

- Encourage students to interview a new mother who breastfeeds her baby. Why did she choose to do so? For comparison, they may also wish to interview a mother who has chosen to bottlefeed. There may be a La Leche League chapter in your community that may help you contact breastfeeding mothers.
- Research a woman's food and nutrition needs during pregnancy and breastfeeding. Are they different from when she is not pregnant or breastfeeding? What are the possible effects of a poor diet when a woman is either pregnant or breastfeeding?
- Ask a pediatrician, internist or allergist to talk about the immunization properties of breastmilk. What common ailments are prevented? For how long? What substances are passed on through a mother's milk? What dietary restrictions might be placed on a nursing mother?
- Students can research the infant formula controversy and the *International Code of Marketing Breast-milk Substitutes* passed by the World Health Assembly in May, 1981. A class debate on the pros and cons of this issue may be scheduled.

BREAST v BOTTLE

In the developing world, breast-fed babies grow better and are more likely to survive. But bottle-feeding is on the increase — putting millions of infants at risk. (UNICEF)



THE ADVANTAGES OF MOTHER'S MILK

BETTER NUTRITION

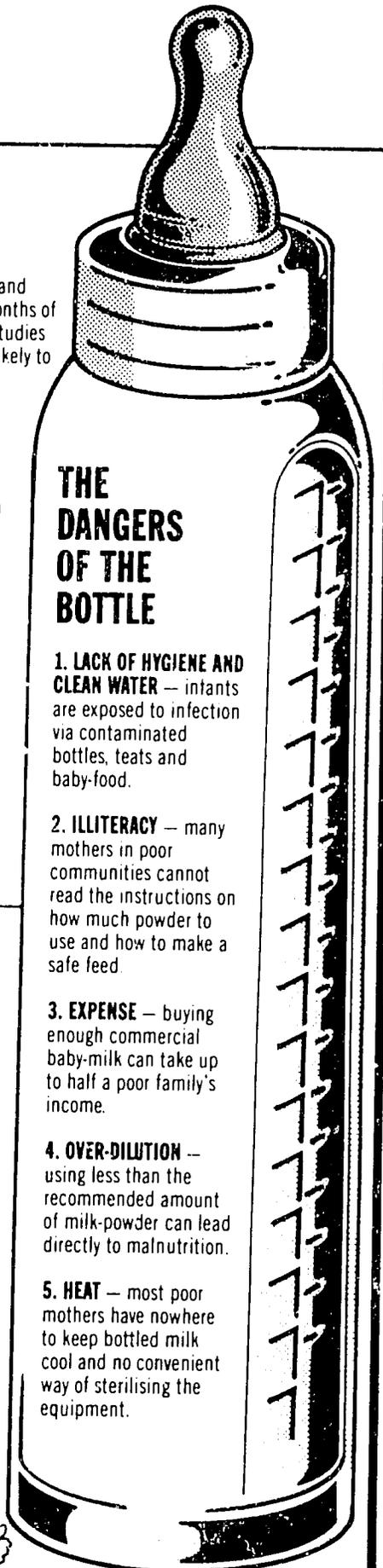
Breast-milk has all the proteins, vitamins and minerals a baby needs for the first few months of life. Even among malnourished mothers, studies show that breast-fed babies are twice as likely to achieve normal weight for age.

LESS INFECTION

Mother's milk also immunizes the infant against common ailments — reducing by as much as 50% the risk of diarrhoea and respiratory illness.

NATURAL CONTRACEPTION

Although not a reliable method, breast-feeding has a powerful contraceptive effect. In many countries, it is the most important factor in preventing another pregnancy in the first year after giving birth.



THE DANGERS OF THE BOTTLE

1. LACK OF HYGIENE AND CLEAN WATER — infants are exposed to infection via contaminated bottles, teats and baby-food.

2. ILLITERACY — many mothers in poor communities cannot read the instructions on how much powder to use and how to make a safe feed.

3. EXPENSE — buying enough commercial baby-milk can take up to half a poor family's income.

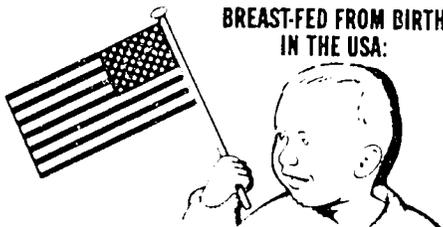
4. OVER-DILUTION — using less than the recommended amount of milk-powder can lead directly to malnutrition.

5. HEAT — most poor mothers have nowhere to keep bottled milk cool and no convenient way of sterilising the equipment.

BREAST BEST IN WEST

Information about breast-milk's superiority has led to a change back to breast-feeding in the rich world:

BREAST-FED FROM BIRTH IN THE USA:



1973	—	26%
1980	—	54%

BREAST-FED AT TWO MONTHS OF AGE IN SCANDINAVIA:



1970	—	35%
1980s	—	75%

A CODE TO PROTECT INFANTS

In 1981, the World Health Assembly adopted an "International Code of Marketing" to help stop the irresponsible promotion of breast-milk substitutes.

THE ACTION SO FAR:

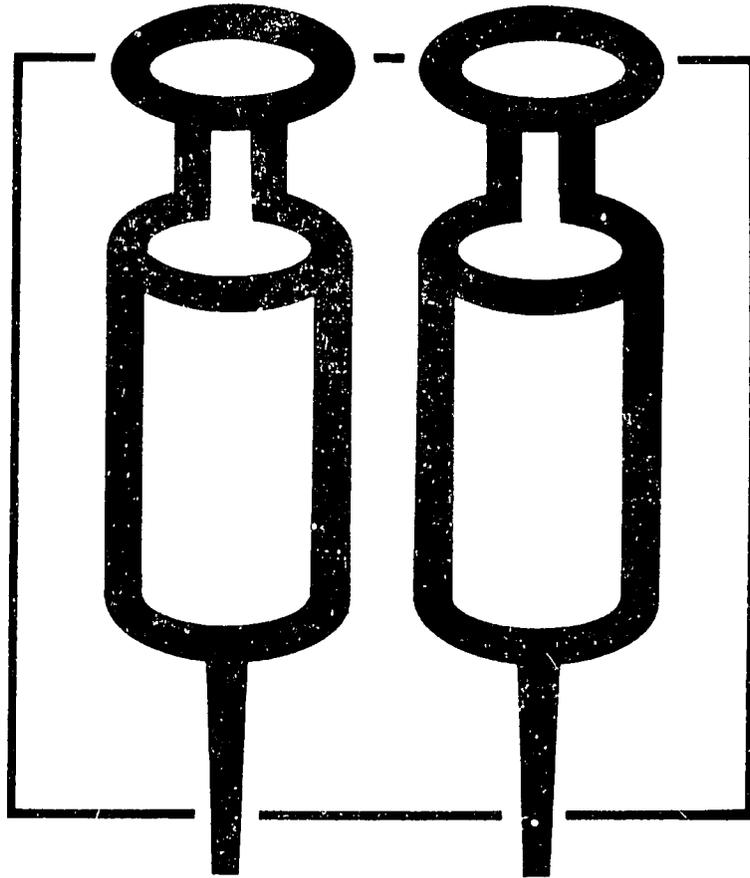
33 Governments have banned all advertising of breast-milk substitutes to the public.

17 Countries are running mass media campaigns to promote the advantages of breast-milk.

18 Countries have brought in national 'Codes' to regulate the marketing of powdered milk and 34 countries are now drafting legislation.



Unit Five—Immunization



Immunization—now saving a million children's lives each year in the developing world.

UNIT FIVE

Immunization

Lesson Length: 45–60 minutes

Compatible Subjects: Social Studies, General Science, Biology, Chemistry, Art, Family Life, Home Economics

Unit Objectives: Students will be able to:

1. List six deadly diseases that children are immunized against both in the United States and in developing countries.
2. Describe two benefits of immunizations.

Materials:

1. A supply of styrofoam cups, cotton balls, cloth scraps, newspapers, aluminum foil, sawdust (or other handy materials) and ice cubes.
2. World maps.
3. Immunization handouts.

Vocabulary:

- Cold chain
- Contagious disease
- Diphtheria
- Immunization
- Infectious Disease
- Measles
- Mumps
- Pertussis
- Polio
- Rubella
- Smallpox
- Tetanus
- Tuberculosis
- Vaccine

Procedure:

Activity I: Cold Chain Exercise

A. First thing in the class period, ask the students to construct an “ice box” to insulate one ice cube. Ice boxes are to be made from materials listed under number 1 in Materials section. Everyone receives 2 styrofoam cups; other materials are used at the students’ whim. Whoever is left with the largest intact ice cube at the end of class “wins” (prize left to your discretion). Be sure the ice boxes are labeled by name. **Note:** This exercise works best if one to two hours can pass between ice-box construction and unwrapping. If that is impossible, then make sure unwrapping is the last activity of the class period.

B. Begin the lesson with discussions on the need for vaccines. What are vaccines? Has everyone in the class had “shots”? Which ones? Why is there a rule “no immunization, no school”? Why are they important? Ask the class against what diseases children are routinely immunized (in the United States, generally polio, diphtheria, mumps, measles, rubella, tetanus and pertussis; your particular school district may have other requirements).

Pass out the handout on immunization. You may wish to review each illness separately and in more detail. Are there any diseases with which the students are familiar? Ask the students if they have seen any examples of the diseases listed on the handout. Did they ever have one of the diseases? How did they feel when they were sick? They can share their experiences.

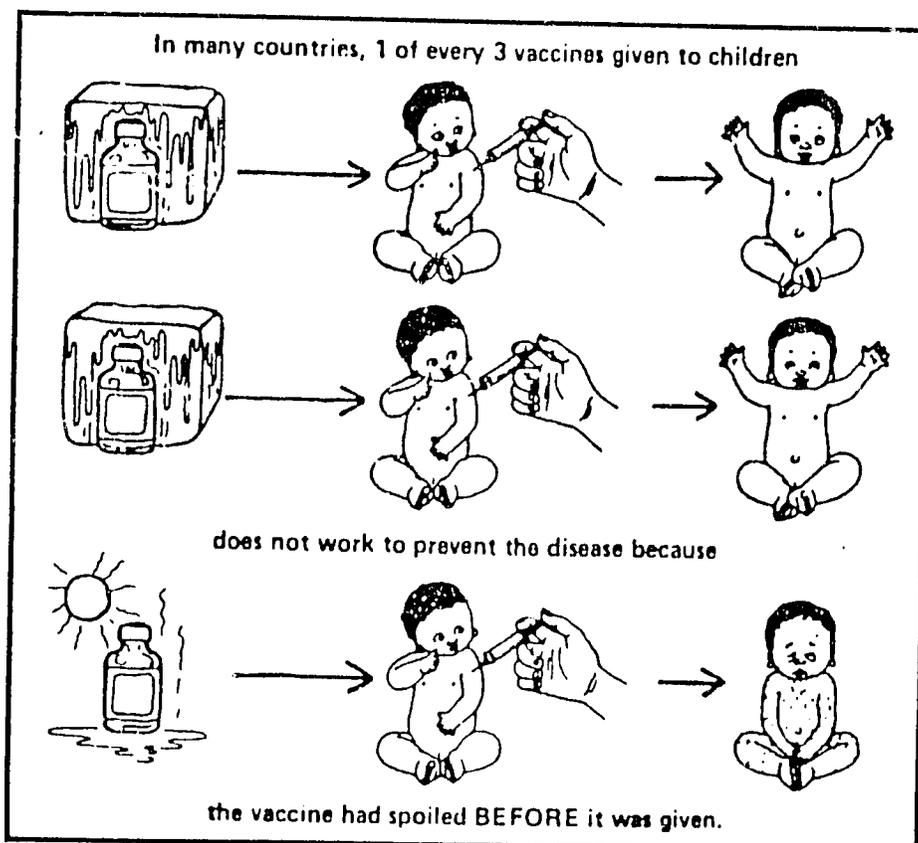
Ask the students if there are diseases with which they are *not* familiar. What are they? Do the students have any idea why they *haven't* heard of those diseases? Most likely it is because immunizations have reduced the rate of those diseases to such low levels that the students will not know anyone who has contracted them; for example, pertussis and diphtheria. (Tuberculosis is an exception to this rule. TB levels are low in the United States, but that is due mainly to improved sanitation, clean water, less crowded living conditions, and effective medicines for treatment. Use of the BCG vaccine against TB is almost nonexistent in the United States.)

C. These questions will be easier for the students if the units on growth monitoring and/or oral rehydration have been presented first.

Ask the students what they think would happen to children if they were already malnourished and caught measles. What if they caught pertussis? Or what would happen if they had severe diarrhea and a vaccine-preventable disease? What if parents can't afford to take their children to a health worker to be immunized? Does the class agree as to the importance of vaccines?

D. Many vaccines will spoil with exposure to heat. Explore the necessity for refrigeration of vaccine from laboratory to child. What would happen if children live in areas where electricity is not usually available? What if that were compounded by lack of refrigerators and by difficulty in obtaining medical equipment? Is it easy to keep things cold without a refrigerator? Find out by unwrapping the ice cubes.

E. Read or pass out the story of how Colombia handled its immunization program. However, if you plan to do the campaign simulation exercises listed under "Older Grades" or "Closure Activities" (and we recommend that you do), the Colombia handout might be more effective if distributed *after* those activities.



Enrichment Activities:

- Encourage students to research their family's immunization history. What were they immunized against? What were their brothers and sisters immunized against? What were their parents immunized against? Is there any difference in vaccinations between the students' generation and that of the parents? (Most adults will have had the smallpox vaccination; most students will not have needed it.) Were their grandparents immunized? From what diseases? How old were the grandparents when they were immunized? Compare notes in class.
- Visit a local public health clinic for a tour of the facilities and a talk about immunizations. If this is not possible, invite a public health nurse or physician to visit the class.
- Ask students to research the vaccine-preventable diseases mentioned in this unit. How are they spread? In what ways do the diseases make you ill? What are the possible complications?
- Design posters for an immunization campaign. What information do the students think important to include?

Older Grades:

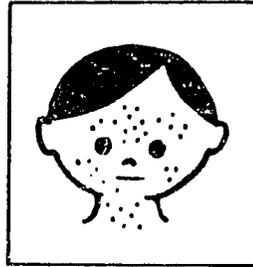
- Ask the class to split into small groups of about five or six each. Each group should have a recorder and a reporter. How would the group run an immunization program in a developing country? If the students have studied specific countries or developing world situations, you may wish to assign this project to them, specifying that they plan a program with a certain country in mind. Ask the students to plan an immunization campaign, keeping in mind issues such as vaccine supply, preservation, administration, transportation and (very important) public promotion. Would their program depend upon foreign aid? Over 80% of child survival funds are furnished by developing countries themselves. Give the students a set amount of time, such as 15–20 minutes for their brainstorming activities. Ask each group to share with class.
- Research the history of smallpox and its eradication. When was the vaccine first produced? How widespread was smallpox? How deadly was it? How did smallpox affect world history, especially that of the Western Hemisphere? Where and when was it finally eradicated? How much did the whole eradication effort cost? Information may be obtained from *Princes and Peasants*, a book written specifically about this topic (see Resource section).

The six killers

Only 10% of children receive protection from measles, TB, whooping cough, polio, tetanus and diphtheria. 5 million children a year die from these killers and 5 million more are disabled. Expanded Programmes of Immunization (EPI) are trying to extend coverage to pregnant women and infants.

Measles

Highly contagious, caused by virus entering nose or throat. Almost every unimmunized child contracts measles; in developing world can lead to respiratory, neurological, blinding complications. Can precipitate severe malnutrition. In West Africa causes death of 500,000 children under 2 each year. Case fatality: 10%.

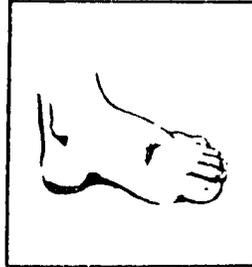


Whooping cough

Acute respiratory disease caused by bacteria, spread by coughing. Cough intensifies into long periods of prolonged "whooping" respiration, accompanied by vomiting and loss of appetite. 80% all unimmunized children contract disease. Case fatality: 1-3%, mostly among under 2s.

Tetanus

Acute infectious disease caused by bacteria which enter through wounds or cuts. First symptoms include difficulty in swallowing ("lockjaw"); spasms and convulsions can lead to fracture of vertebrae or heart stoppage. 1 million lives lost per year, of which 50% among newborn, particularly where birth conditions not aseptic.

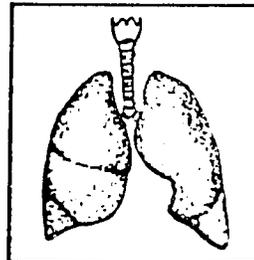


Polio

Acute infectious disease spread by touch or by eating drinking contaminated water or food. Symptoms include pain and stiffness in back or limbs; often leads to paralysis. Endemic where sanitation poor; becomes epidemic when health standards rise. Case mortality: 10-15% with 50% resulting in residual paralysis.

TB

Bacterial infection spread by coughing or drinking infected milk. Common in childhood, can be low and emerge later as active disease leading to disability or death. Symptoms: cough, fever, wasting, debility. 20 million cases in the world; 2 million new cases each year. 1-2 million deaths.



Diphtheria

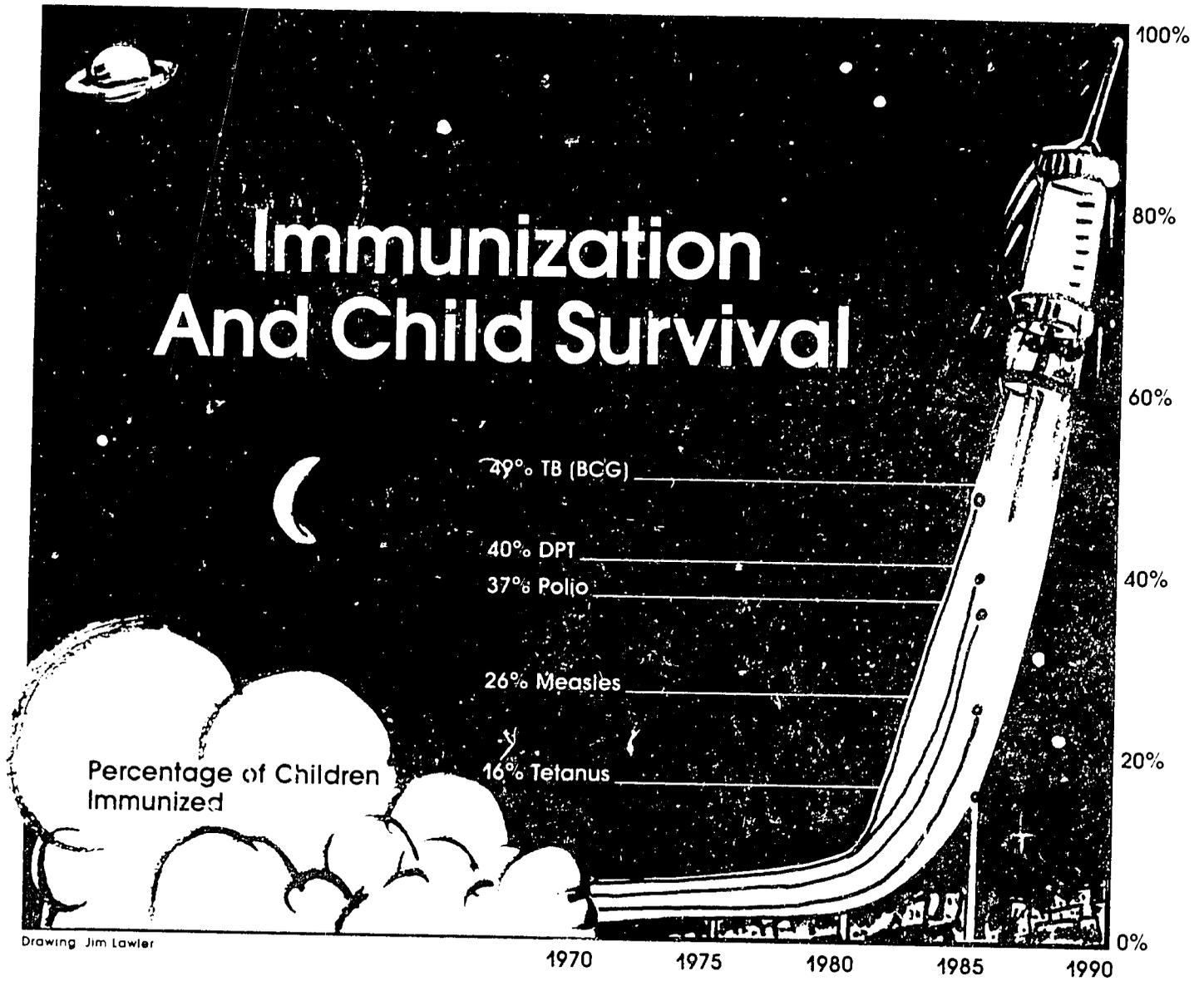
Caused by bacteria, spread by coughing or contact. Symptoms include difficulty breathing/swallowing, enlarged neck, tightened throat muscles. Considered rare, though incidence increasing with urbanization. Case mortality: 10%.



On three separate Sundays during 1985, fighting in El Salvador's civil war was stopped to allow a nationwide immunization campaign to protect over 60% of the nation's children against diseases which were claiming 20,000 young lives each year.

S.M.

Immunization And Child Survival



Drawing Jim Lawler

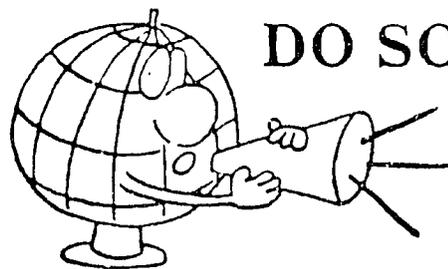
CLOSURE AND EVALUATION ACTIVITIES

—Prepare a public display on Child Survival and the GOBI method by putting up a library display, holding an art show, or by decorating a bulletin board.

—If your class participates in the puppet project, put the play on at a schoolwide assembly. (See Enrichment Activities, Unit 3, ORT.)

—Present your class-written play on hunger and its solutions. (See Enrichment Activities, Unit 2, Growth Monitoring.)

—Follow the suggestions on the handout. DO SOMETHING!

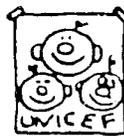


DO SOMETHING!

"Children can't stand still and wait"

SPREAD THE WORD ABOUT THE SILENT EMERGENCY

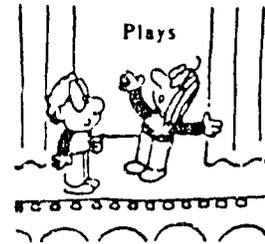
Write to political representatives and elected officials



Poster and essay contests



Investigate available services for young people

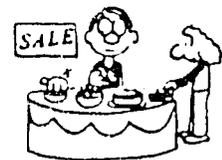


Work with various community groups, volunteer in community projects



Write letters to the editor

Sponsor fund-raising activities
Walk, bike, read-a-thons,
car washes, bake sales,
talent shows, hire a kid, etc

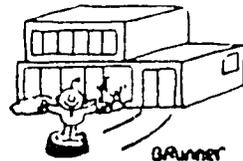


GET INVOLVED

Invite informed speakers to your group meetings



Discuss issues in different clubs, classes, meetings of religious groups



Join-in the efforts of organizations already trying to improve the status of children

CLOSURE AND EVALUATION ACTIVITIES (Continued)

"You can't improve the economy of a people until you improve the health of a people."
Dr. David E. Bell, Harvard School of Public Health.

- Schedule a debate around the idea presented in the above quote. Additional suggested questions: If the cost of labor in developing countries is cheap, how might that be reflected in the people's standard of living? In their health? Can people who are frequently sick work to build a better country? Do they think a country which has a high IMR will be politically stable? Economically stable?
- Write to political representatives supporting funding for child survival and hunger programs around the world. (See *Bread for the World*, Resource section.)
- Investigate and research problems relating to child survival. Contact your local radio or television station or newspaper for help in spreading the message about child survival and the silent emergency to your community. Or ask them to air student-produced public service announcements.
- Tabulate responses to the Pretest/Posttest quiz, and display results to the class or school. How did the students fare? What programs do *they* come up with to inform their fellow students of health situations in developing countries? (See Unit One, Procedure.)
- How would the students run their own child survival campaigns if they were ministers of health of developing countries? Ask the students to split into "national health task forces" of about five or six students each. Each group should have a recorder and a reporter. How would the group plan, fund, advertise and run a child survival program in a developing country? (Or the group may elect to tackle only one of the GOBI interventions.) If the class has studied specific countries or developing world situations, you may wish to specify for which country they are to plan a program. Ask the students to keep in mind issues of supply, administration, transportation and program promotion (this activity may include developing posters and slogans for their campaign). Would their programs depend upon foreign aid? Over 80% of child survival funds are furnished by developing countries themselves. Ask groups to share programs with each other upon completion of assignment.
- Choose any Enrichment/Older Grades activity that you and the class did not have an opportunity to explore. Activities which involve groups of people and take place in a community setting are often the most effective for closure activities.

GLOSSARY

- Affluence:** a condition of great plenty or wealth.
- BCG (vaccine):** named *bacillus Calmette-Guerin* after its discoverers, BCG is the bacteria in the tuberculosis vaccine. Usually, the term BCG is used to mean the vaccine itself.
- Breastfeeding:** supplying the majority of the infant's nutritional needs through the mother's breastmilk.
- Cold Chain:** the maintenance of adequate cold storage of vaccines during transport from laboratory to child.
- Contagious Disease:** a disease passed readily from one person to another; a communicable disease.
- Contamination:** to make impure; to infect or pollute.
- Dehydration:** an excessive loss of water from the body. Loss of too much of the body's fluids can result in shock and death.
- Developed Country:** an industrialized country whose citizens enjoy a high standard of living, high literacy rates and generally adequate health care.
- Developing Country:** a country, usually with an agricultural base, whose citizens are generally poor. The persons in these countries have more limited access to adequate health care and educational opportunities.
- Development:** a process of improvement, growth or advancement. All countries are developing in some way.
- Development Education:** education about the priorities and problems of people in developing countries.
- Diarrhea:** excessive frequency and looseness of bowel movements. Often defined as more than one watery stool per day. Can lead to loss of the body's liquids and result in dehydration.
- Diphtheria:** a communicable disease which causes membranes to develop in the throat.
- Encephalitis:** a general term for inflammation of the brain. Encephalitis may be a specific disease in and of itself, caused by certain viruses. Or it may be a rare side effect of diseases such as influenza, measles, German measles or chickenpox.
- First World:** a term used to describe the developed, industrialized countries (Western Europe, North America, Australia and New Zealand).
- Fourth World:** a relatively new term, not in universal usage. It means the very poorest and least developed of the world's nations.
- Gross National Product (GNP):** the total of all the goods and services produced by a country in one year. When divided by the number of citizens of that country, the resulting per capita gross national product is a rough indicator of the level of prosperity and development of that country.
- Immune:** protected from or resistant to disease.
- Immunization:** the process of introducing a substance into the body to stimulate the body's defense against an infectious disease. In the United States, immunizations against measles, mumps, polio, pertussis, tetanus and diphtheria are generally required by law. In most other countries, measles, polio, diphtheria, pertussis and tetanus vaccines are required, as is BCG (the tuberculosis vaccine).

- Infant Mortality Rate (IMR):** the annual rate of deaths of children under one year of age per 1000 births.
- Infectious Disease:** any illness caused by the multiplication of disease causing microorganisms in the body
- Kwashiorkor:** a term from Ghana, West Africa, meaning roughly "disease of the firstborn child," so named because an older child would be displaced from the breast when a younger sibling was born. The lack of protein in the diet causes swelling of the legs and face. This swelling sometimes makes the child appear more well-nourished than he or she really is. Sometimes called "wet malnutrition" because of the swelling.
- Life Expectancy:** the number of years newborns could, on the average, expect to live if they all shared equally the health risks present in their country at the time of their birth.
- Malaria:** a disease characterized by recurrent fevers and chills. It weakens the person who acquires the disease, and can kill, especially young children. Malaria is transmitted through mosquito bites. It is common in tropical countries, especially in areas where standing water allows the mosquitos to breed. There is no vaccine or cure for malaria.
- Malnutrition:** a general term for the lack of necessary food in the body. Can also describe the results of improper absorption of those substances, as in diarrheal episodes.
- Marasmus:** extreme thinness or wasting; starvation. Occurs when a food lack develops suddenly, such as in famines or prolonged diarrheal attacks.
- Measles:** a highly communicable childhood disease. While usually a fairly mild disease among children of developed countries, measles kills more children in developing countries than any other vaccine-preventable disease.
- Mumps:** a communicable disease most noted for the swelling it causes of the salivary glands. Not generally a killer disease.
- North:** the hemisphere which contains most of the world's developed countries and financial resources; developed countries.
- Pertussis:** also called whooping cough from the sound children make as they try to inhale between coughing spells. The coughing spells are so forceful that children often vomit afterwards. Complications include malnutrition and pneumonia.
- Polio:** the "nickname" for poliomyelitis. A communicable disease, polio's effects range from an infection so mild as to be unnoticeable to complete paralysis of the body's muscles. It is a majorcrippler of children in the Third World.
- Poverty:** lack of resources; the condition of being poor.
- Primary Health Care:** a system of health care which emphasizes disease prevention and health maintenance.
- Rubella:** the official name for German measles. A fairly mild childhood communicable disease. Rubella can cause birth defects if mothers contract the disease while pregnant. Not considered a major problem in developing countries.
- Sanitation:** the study and use of hygienic measures such as pure water, disposal of waste, ventilation, etc.
- Second World:** a term used to describe the communist nations of the Soviet bloc.
- Smallpox:** a highly contagious disease. Smallpox causes skin eruptions, and often leaves victims with disfiguring scars. It has a high mortality rate. Smallpox can be prevented by immunization. The World Health Organization declared smallpox to be eradicated on October 26, 1979, two years after the last naturally occurring case was reported in Somalia.

- South:** the hemisphere which contains the majority of the world's people and fewer financial resources; developing countries.
- Stunting:** the failure of a child to reach full potential height due to chronic food lack.
- Tetanus:** an infectious disease, usually fatal. Tetanus enters the body through cuts or wounds, such as cutting a newborn's umbilical cord with an unsterile knife. This disease causes rigidity of the voluntary muscles, especially of the face and neck; its "nickname" is lockjaw for this reason. Vaccinating the mother while pregnant will protect the baby after it is born.
- Third World:** a term applied to developing countries; those not in the first or second "worlds." When used with the term *Fourth World*, it means those developing countries that are relatively more prosperous.
- Tuberculosis:** also called TB, this disease causes infected nodules in whatever organ it attacks. Commonly found in the lungs, it can lead to pneumonia. In the bones, it can cause deformities. It is most fatal to infants; the vaccination is given shortly after birth.
- Vaccine:** any preparation of killed, weakened or otherwise prepared microorganisms introduced into the body to produce immunity to a specific disease.
- Wasting:** the extreme thinness and loss of muscle caused by a total or near total lack of food; starvation.
- Weaning:** the period of time when an infant is changing from a milk-based diet to one of solid food.
- Xerophthalmia:** an eye disease which can cause irreversible blindness. It is caused by lack of vitamin A in the diet.

Both these
boys are
four years old



Photograph: John Isaac / UNICEF

These two South Indian children, Sakthivale on the left and his friend Vasanth on the right, are the same age. The difference between them is obvious now but wasn't when the damage was being done. The pattern of future growth is set in the first 24 months of life.

Undernutrition at that age is invisible even to a doctor. The only way to detect poor growth is regular weighing during the first two years of life. Weighing alerts parents to the problem, and low-cost methods can protect the child's normal development.

RESOURCES

The following are just a few examples of the many resources available in the area of international health and development education.

Additional Teacher Information

Chandler, William U. *Investing in Children (Worldwatch Paper #6-1)*. Washington, DC: Worldwatch Institute, 1985. (Worldwatch Institute, 1776 Massachusetts Ave., N.W., Washington, DC 20036; \$4.00.)

An easy-to-read summary of the crisis of poverty, hunger and illness affecting many of the children in developing countries today. Child health is used as the major indicator of national and international development.

Children's Defense Fund. *A Children's Defense Budget*. Washington, DC: 1985. (Children's Defense Fund, 122 C St., N.W., Washington, DC 20001; \$12.95.)

This book reviews the likely impact on children's health, welfare, education, social services and youth employment arising from the 1986 budget proposals of the U.S. administration. It presents the argument that "poverty is the greatest child killer in . . . affluent America," afflicting over 13 million U.S. children. This report is published annually by Children's Defense Fund.

Kidron, Michael and Segal, Ronald. *The New State of the World Atlas*. New York: Simon and Schuster, 1984; \$10.95.

This visually stimulating full-color atlas effectively illustrates such global issues and problems as the arms race, trade, life expectancy, distribution of wealth, types of government, etc. It includes background notes. May be used in conjunction with *Activities Using the State of the World Atlas* (see Curricula, below).

Morley, David and Lovel, Hermione. *My Name Is Today*. Houndmills, Hampshire, England: Macmillan Publishers, 1986. (Teaching Aids at Low Cost [TALC], P.O. Box 49, St. Albans, Herts. AL1 4AX, England; approx. \$5.00.)

This book is about the health and nutrition of children and their families in the less developed countries of the world, shown through illustrations, cartoons, graphs and line drawings. It is written for those interested in health and development with little time to keep abreast of the enormous and increasing literature in health care.

Four simple, low-cost methods could cut child deaths by half.

G



Growth Charts

By weighing a child every month and charting the child's growth on specially designed charts, a mother can detect for herself the early stages of "hidden malnutrition" and take steps to remedy it.

O



Oral Rehydration

Oral rehydration therapy (ORT) is the administration of a simple solution of sugar, salt and water to treat dehydration caused by diarrhea. The solution increases a body's ability to absorb fluids by 2,500 percent.

B



Breast-Feeding

Breast milk is the best food for infants, but in the developing world its advantages over formula feeding can mean the difference between life and death. Hygienic, readily available and nutritionally sound, breast milk also provides infants with immunological protection.

I



Immunization

Universal immunization for young children is now possible. UNICEF's goal is to immunize the world's children by 1990. Most of the five million deaths each year from measles, diphtheria, tetanus, whooping cough, poliomyelitis and tuberculosis could be prevented.

Pan American Health Organization (PAHO). *Health of Adolescents and Youth in the Americas*. Washington, DC: PAHO, 1985. (PAHO, 525 Twenty-third Street, N.W., Washington, DC 20087.)

Discusses basic health needs and status of youth in the Western hemisphere. Outlines health services and education and suggests remedial strategies.

UNICEF. *The State of the World's Children 1987*. New York: UNICEF, 1987. (UNICEF, Division of Information and Public Affairs, UNICEF House, 3 U.N. Plaza, New York, NY 10017; free.)

An annual report by UNICEF summarizing the problems faced by millions of children worldwide and the advances made to combat those problems. The 1987 edition has several pages of basic health and lifestyle statistics in an easy-to-read format.

Werner, David and Bower, Bill. *Helping Health Workers Learn*. Palo Alto, CA: The Hesperian Foundation, 1982. (The Hesperian Foundation, P.O. Box 1692, Palo Alto, CA 94302.)

Describes a people-centered approach to health care and presents successful strategies for effective community involvement.

Additional Student Reading

Hamilton, John Maxwell. *Main Street, USA, and the Third World*. Cabin John, MD: Seven Lakes Press, 1986; \$9.95.

Written by a newspaper reporter, this book explores the connections between everyday life in the United States and the developing world.

Hopkins, Donald R., M.D. *Princes and Peasants*. Chicago: University of Chicago Press, 1983.

A fascinating exploration of smallpox, the disease which struck both princes and peasants, and its influence upon history.

Sinclair, Upton. *The Jungle*. (Originally published 1906; many editions currently available.)

Written early in this century as a satire describing the inhuman working conditions in the Chicago slaughter houses.

Curricula

Exploring the Third World: Development in Africa, Asia, and Latin America. New York: The American Forum, Inc., 1987. (45 John St., Suite 1200, New York, NY 10038; \$35.00.) Curriculum package (includes teaching guide, full-color wall map, wall chart, and ten student booklets).

Canadian Red Cross Society. *One Earth: Why Care? Red Cross Youth International Development Resource Package*. Toronto: Canadian Red Cross Society, 1979. (National Headquarters, The Canadian Red Cross Society, 95 Wellesley Street East, Toronto, Ontario M4Y 1H6.)

This curriculum, designed for middle schools, includes seven units, each based on a common misconception. It emphasizes world interdependence. The curriculum is designed to facilitate students' understanding, develop empathy, and motivate them to action.

Canadian Red Cross Society. *Tomorrow's World*. Toronto: Canadian Red Cross Society, 1982. (National Headquarters, The Canadian Red Cross Society, 95 Wellesley Street East, Toronto, Ontario M4Y 1H6.)

This curriculum has a series of classroom activities for secondary students designed to highlight international development issues. The program emphasizes participation and experiential learning in combination with discussion and research.

Hursh, Heide and Prevedel, Michael. *Activities Using the State of the World Atlas*. Denver: Center for Teaching International Relations, 1985. (CTIR, University of Denver, Denver, CO 80208; \$21.95.)

This popular book contains high-interest activities designed to be used with *The New State of the World Atlas*. Used in concert with the *Atlas*, these activities offer teachers a valuable tool for stimulating student interest in these issues.

INSA. *INSA Hand Puppet Training Manual*. Atlanta: INSA, The International Service Association for Health, Inc., 1985. (P.O. Box 15086, Atlanta, GA 30333; \$3.00 in the United States.)

Using a script based upon an oral rehydration story, this manual presents step-by-step methods for hand puppet construction and performance presentation for young students. Every step is illustrated with photographs. An optional half-inch video cassette complements the manual by demonstrating puppet-making techniques. Tape is 47 minutes long and is available on free loan in the United States only with purchase of a manual; return postage at borrower's expense.

Project WHERE. *Health for All*. Newton, MA: Education Development Center, Inc., 1987. (American Association for World Health; 2001 S Street, M.W., Suite 530, Washington, DC 20009; \$2.00 ea.)

Developed as one of nine Teenage Health Teaching Modules, *Health for All* takes an interdisciplinary approach to introducing students to global health concepts. Target Audience: Grades 9 and 10.

The World Bank. *The Development Data Book*. Washington, DC: The World Bank, 1984. (The World Bank, 1818 H Street, N.W., Washington, DC 20433.)

Teacher's guide and student book provides social and economic statistics on 125 countries to use in a series of activities on life expectancy, adult literacy, population growth, GNP, per capita and merchandise exports. Teacher's Guide contains activities, discussion questions, and reproducible test. Classroom set of Data Books (10) and Teacher's Guide—\$10.00. Grades 10–12.

Wright, Ellen Hayes, and Harrell, Patricia S. *Teaching About Developing Nations: The Role of Food and Hunger*. Atlanta: INSA, The International Service Association for Health, Inc., 1985. (P.O. Box 15086, Atlanta, GA 30333; \$6.00.)

This curriculum guide uses a factual approach to understanding global implications of hunger and poverty in developing nations. The curriculum includes units on nutrition, hunger, a developing country's profile, water, follow-up, resources and evaluation. Target Audience: Grades 6 and up.

Audio-Visual Resources

Haiti. Atlanta: INSA, The International Service Association for Health, Inc. (P.O. Box 15086, Atlanta, GA 30333. Free Loan.)

A slide presentation which describes the cultural and historical background on Haiti. Includes information on people, religion, and agriculture. Eighty slides with accompanying script. Target Audience: Ages 12 and up.

Burkina Faso. Atlanta: INSA, The International Service Association for Health, Inc. (P.O. Box 15086, Atlanta, GA 30333. Free Loan.)

A slide presentation which introduces the West African country of Burkina Faso (formerly Upper Volta). Highlights the capital city of Ouagadougou and a typical village in the countryside. Scenes of daily life dominate the presentation. Eighty slides with accompanying script. Target Audience: Ages 6 and up.

A Journey for Survival. New York: U.S. Committee for UNICEF. (331 East 38th St., New York, NY 10016.)

The United Nations has declared 1981 through 1990 the decade of drinking water supply and sanitation. This film shows the continuing journey for survival and the collective efforts of nations and international organizations to bring an end to this quest. Color film; 15 minutes. A teacher's guide is available. **Note:** The U.S. Committee also has an extensive film library for classroom use; a pamphlet describing the listings is available upon request.

Children of Hunger and Hope. Washington, DC: Bread for the World. (802 Rhode Island Ave., N.E., Washington, DC 20018.)

An introduction to developing countries and hunger issues. Also provides an introduction to the GOBI strategies. Slides with accompanying script.

Organizations

American Public Health Association

1015 15th Street, N.W.

Washington, DC 20005

Produces *Salubritas*, a monthly health information newsletter in English, Spanish and French.

Bread for the World

802 Rhode Island Ave., N.E.

Washington, DC 20018

(202) 269-0200

Bread for the World is a citizens' lobby movement that works through over 1,000 local groups to influence U.S. government policies on hunger issues. They can advise a group how to begin a letter-writing campaign to members of Congress. Bread for the World also has audio-visual materials available.

CARE World Headquarters
660 First Avenue
New York, NY 10016
(212) 686-3110

Involved in overseas relief and development activities. CARE also has an extensive development education program. Various audio-visual and printed materials on hunger, health care, development and child survival are available.

Global Perspectives in Education
45 John Street
New York, NY 10038
(212) 732-8606

A private, nonprofit educational organization that works with educators to develop internationally related curricula for U.S. schools.

Heifer Project International
International Learning & Livestock Center
Route 2, Box 33
Perryville, AR 72126
(501) 889-5124

A private, nonprofit organization that provides livestock, training and other agricultural services to low-income farmers in developing countries. About 25% of its work is domestic and includes public education at the livestock center.

INSA, The International Service Association for Health, Inc.
P.O. Box 15086
Atlanta, GA 30333
(404) 634-5748

Promotes development education through direct involvement in overseas projects. Has curriculum guides on hunger and other issues, slide presentations on developing nations, and ideas for ways in which students and youth groups can become involved in INSA projects overseas.

La Leche League International
9616 Minneapolis Avenue
P.O. Box 1209
Franklin Park, IL 60131-8209
(312) 455-7730

An organization dedicated to the promotion of breastfeeding. Provides support to new mothers beginning breastfeeding, and acts as a clearinghouse on breastfeeding information.

Lasting Links
6231 Leesburg Pike
Falls Church, VA 22044

A clearinghouse for small-scale projects from many different organizations. Lasting Links will match schools or other groups with a particular relief or development project to suit their interests.

National Council of Returned Peace Corps Volunteers
1319 F Street, N.W.
Washington, DC 20004

Provides information on speakers and returned Peace Corps volunteers. Its development education project is aimed at introducing Returned Volunteers to schools.

Oxfam America, Inc.
115 Broadway
Boston, MA 02116
(617) 482-1211

A private, nonprofit organization dedicated to ending hunger and encouraging development through the world by promoting self-help projects in developing countries.

Save the Children
54 Wilton Road
Westport, CT 06880
(203) 226-7271

An international child-assistance agency working with children and their families in 44 countries, including the United States. Programs are designed to enhance living conditions through self-help projects.

SEEDS
222 East Lake Drive
Decatur, GA 30030
(404) 378-3566

An ecumenical group concerned about hunger. SEEDS publishes *SEEDS*, a monthly magazine about hunger issues, particularly in the United States.

U.S. Committee for UNICEF
331 East 38th Street
New York, NY 10016
(212) 686-5522

Cooperates in developing countries' efforts to improve the health and living conditions of their children. UNICEF has an extensive audio-visual and education materials resource list, available upon request. UNICEF can supply information on how school groups can plan fund-raising events that support the organization's activities.

The United Way
(check your local phone directory)

Acts as clearinghouse for a variety of local public service agencies.

PRETEST/POSTTEST

1. The Developing World is:
 - a) Oceania
 - b) Africa, Asia and Latin America
 - c) Soviet bloc nations
 - d) Countries with centrally planned economies
2. If you lived in some of the poorest countries of the world, what kind of food would you most likely find in your kitchen?
 - a) Frozen vegetables, fresh fruits, meat, milk, eggs
 - b) Dried meat, vegetables and powdered milk
 - c) Some flour, a little salt and sugar, rice, onions, and beans or potatoes
 - d) Cocoa, sunflower seeds, honey
3. In those same poorer countries, which of the following would you likely find furnishing your house?
 - a) Armoires, etageres
 - b) Sofa, tv, tables, chairs, beds, dressers, lamps
 - c) A table, one chair, some blankets
 - d) Woven mats only
4. How many children all over the world can be saved every day through simple health measures?
 - a) 500
 - b) 10,000
 - c) 20,000
 - d) 40,000
5. Which of the following are the four ways many health agencies recommend to save half of the children who die daily?
 - a) Growth monitoring, oral rehydration therapy, breastfeeding and immunization
 - b) Vitamin supplements, high-fiber diets, less fattening foods and exercise
 - c) Giving money to charity, donating clothes, giving blood to the Red Cross and sending food packages
 - d) Training more doctors, building more hospitals, prescribing more medicines, and encouraging people to move to cities to be closer to the hospitals
6. In many parts of the world, people go hungry because:
 - a) They are too lazy to work for a living
 - b) There are too many people in an area
 - c) The world doesn't have enough food to feed everybody
 - d) There is more than enough food to feed everybody, but it is not evenly distributed
7. For most children of the world, diarrhea:
 - a) Is embarrassing, but not a problem
 - b) Is annoying, so they take medicine to prevent it
 - c) Is life-threatening, because the children lose most of their body's fluids
 - d) Doesn't exist, because they eat different foods than U.S. citizens do, so they don't get diarrhea
8. In most of the world, the family's water comes from:
 - a) A faucet in the kitchen or bathroom
 - b) A hand pump in the backyard
 - c) The village well or waterhole
 - d) Catching rainwater from the roof

9. Which of the following is true?
- Only poor mothers breastfeed their babies
 - Infant formulas are better for a baby than breastmilk
 - Using a bottle is more sanitary than breastfeeding
 - Breastmilk is the best possible food for babies, and sanitary, too
10. Which of the following kills the most children worldwide?
- Malnutrition
 - Accidents
 - Smallpox
 - Diarrhea
11. Most of the people in the world have access to the following kinds of health care:
- A hospital
 - An emergency room
 - A distant clinic
 - A family doctor
12. The *best* way I, as a student, can help children in other countries is:
- Donate blood
 - Participate in action projects aimed at helping people help themselves
 - Contribute money to international relief organizations
 - Save up my used clothing and donate it
13. Which of the following diseases cannot be prevented by immunization?
- Measles
 - Smallpox
 - Tetanus
 - Malaria
14. Which of the following is most like an oral rehydration solution?
- Kool-Aid
 - Coca-Cola
 - Milk
 - Gatorade
15. The best way for a mother to prevent malnutrition in her child is to:
- Take the child to the pediatrician once a year
 - Plot her child's weight on a growth chart each month
 - Observe how much a child eats at each meal
 - Give the child vitamin supplements daily
16. What percentage of the world's people live in developing countries?
- 25%
 - 50%
 - 75%
 - 100%
17. What can happen if you drink untreated water?
- You can get diarrhea
 - Untreated water has more vitamins and minerals, so people don't need vitamin supplements
 - It has no chemicals, so it won't cause cancer
 - There will be no harmful side effects

18. The hemisphere which is considered the least developed is the:

- a) Northern hemisphere
- b) Southern hemisphere
- c) Eastern hemisphere
- d) Western hemisphere

19. Diseases of Poverty include:

- a) Vaccine-preventable diseases
- b) Obesity
- c) Cancer
- d) Heart disease and stroke

20. Which of the following is true about developing countries?

- a) Social scientists fear they shall always remain "backward"
- b) Their stage of development is similar to that of developed countries a century ago
- c) The term refers to oil-rich Middle Eastern nations, because they are "developing" their oil fields
- d) They are well-known for their film-processing capabilities

21. Two ways to check the growth of children is the use of arm circumference bands and weighing. List two advantages of each method.

Armbands

Weighing

TEST KEY

1. B
2. C
3. C
4. C
5. A
6. D
7. C
8. C
9. D
10. D

11. C
12. B
13. D
14. D
15. B
16. C
17. A
18. B
19. A
20. B

21. INEXPENSIVE
EASY TO USE

ACCURATE
SHOWS CHANGE IN
WEIGHT OVER TIME