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ABSTRACT

Part of the population education curriculum materials for the Baltimore public schools, this teaching guide is for the 7-12 resource unit. The unit activities take the student out of his present context of family, neighborhood, and city to help him understand some of the global issues relating to population. The unit focuses on the life of a specific North African family, enabling students to grasp parallels and differences between his family and the African family. The unit encompasses the problem of the world food crisis as well as population and pollution. Ten subunits make up the curriculum. Each contains a title, topic, objectives, activities, materials needed, and suggested homework activities. (Author/JR)

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Not to the Teacher:

This unit, the last of the series, attempts to take the student out of his present context (family, neighborhood and city) and to help him understand some of the global issues that relate to population. Realizing that it is difficult for students to imagine another world "out there", we have tried to address major issues by focusing on the life of a specific North African family. Hopefully, the student will be able to grasp parallels and differences between his family and the African one.

The 1974 United Nations conferences on population growth (Bucharest) and the food crisis (Rome) were both taking place as this unit was being completed. We hope that teachers will keep up to date with current events related to population and supplement the material included here with articles from newspapers and magazines, TV specials dealing with the issues, and other sources. We would like particularly to recommend the Time and Newsweek issues of November 11, 1974, both of which have special sections on the world food crisis. These would make excellent additions to Lesson Three, which deals with food production and the Green Revolution.

LESSON ONE

Unit: Production, Pollution, Population: Issues for a Changing World

Topic: The Nature and Pace of Change in the Developing Countries

Objectives: The student will play the roles of members of an African-Arab family. He should begin to understand specific changes in the developing world through a particular case study.

Materials: Story of Zorah (including map of Africa)
Homework sheet: Interview with a Grandparent

Drill/Motivation Quiz (optional) Matching drill on continents

1.	f	Africa	a. most dense
2.	a	Europe	b. largest continent
3.	d	North America	c. least populated
4.	b	Asia	d. U.S.A. located there
5.	e	South America	e. most rapid population growth
6.	c	Oceania (Australia & Islands plus Anartic)	f. most underdeveloped

7. What is the largest city in the world today?
   a. New York b. London c. Moscow d. Tokyo
8. More than 2/3 of the world's people are of what race?
   a. Black b. White c. Yellow d. Red
9. Underdeveloped describes a country which has:
   a. very few people b. no religion c. very few farms
   d. very little industry and technology e. no natural resources
10. Do more people in the world live in developed or underdeveloped nations? (underdeveloped)

Motivation: Briefly review answers to quiz (with map) if you choose to use it. If not, read together Introduction for Students and Teacher; then move directly into the Story of Zorah.

Activity I: Read the story of Zorah. Teacher should read aloud, stopping to locate Tunisia on a map, give size and population (approximately 58,000 square miles: about the size of Florida; approximately 5 million people), and explain vocabulary as needed. (ex.: extended family) Students should then go back and reread silently while teacher puts headings on the board. Both the Introduction and the Story of Zorah are in the student edition. They are also reproduced on the next three pages for the teacher.

Introduction for Students and Teacher

If your class has studied the first three units of this population series, you have already learned some of the tools and facts of demography (section I). You have learned something about the lifestyles of different Americans and thought about your own future decisions regarding parenthood (section II). You have also learned some facts about your city (section III).

Now, in this last section, we will look beyond Baltimore and even beyond the U.S.A. to Planet Earth. What is going on out there in the wide world? Is there really a "population explosion"? Haven't the lives of most people changed for the better? Is the major danger the fear of famine, ... of pollution, ... or of using our planet's resources too fast? How can the government of a country try to keep its population from growing too quickly? Do governments have the right to do this? How do various people react to government programs in other countries and in the U.S.A.

In the next ten lessons we will give some answers to these questions. We cannot say just what the right answers are because, after all, we are trying to predict the future and nobody can be sure about that. Not even the experts can agree. But we will take a close look at three major issues:

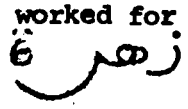
1. Can we grow enough food to feed the world's fast-growing population?
2. Can the world's people have the things they want for a "good life" without using up our natural resources and polluting our planet to death?
3. Do all the world's people agree that population growth should be slowed down? What are the attitudes of different world governments, and of different groups of citizens in our own country?

Before we tackle these major issues, let us take a look at Zorah, a young woman from a small country in Africa. Her story is true and it is a good example of how quickly life has been changing for most people in the world, just in the last twenty years.

A CASE STUDY

My name is Zorah. I am twenty years old and have just had my first baby, a little girl named Jamilla. My country, Tunisia, is on the northern coast of Africa. Because we were conquered by Arab tribes hundreds of years ago, my language today is Arabic and my religion is Muslim. I live in the capital city of my small country. My husband is lucky. Even though he never finished high school, he has a steady job with our new gas and electric company. We hope our daughter will have an easier life than I had when I was growing up. Let me tell you about my childhood in a small North African Village.

Our village only had about 6 or 7 houses and everybody in them was related to my father in some way. We were an extended family living in the same place because our family has owned the farmland around the village for many generations. All of us, men and women, worked the land with hand tools and the help of a camel who pulled the plow. My mother and the other women had very heavy work besides farming. Everyday we carried our water up the hill from the well in huge clay jugs. We gathered twigs and brush to heat our small clay ovens. They looked like brown bee hives, one outside of each house. We baked our own bread in them almost everyday. Because our village had no store, we ate mostly the food we made and kept in the storeroom. All winter we ate couscous, a grain which looks a lot like rice, with olive oil from our own olive trees and eggs from the chickens who wandered in and out of the courtyards. We only ate meat a few times a year when my father killed a sheep or a goat. When summer came we had fresh peas and beans and fruit from our own apricot and pear trees. In the winter there were no fresh fruits or vegetables at all.

When I was five years old, my country declared its independence from France and our new president began to build schools and clinics even for us country people. The elementary school built for our region was about 4 1/2 miles from our village. Everybody walked to school by small foot paths. You had to have shoes to go to school and not many of us could afford them. In our village only the boys were sent to school. We girls stayed home to work in the fields and help our mothers. We scrubbed clothes in a stream near the well. Soap was too expensive; we rubbed the clothes with stones and sand. I never went to school even for one day of my life. Today I can count pretty well up to a hundred but I cannot read at all, not street signs or cooking recipes - not even comic books. A lady I worked for once taught me to write my name in Arabic. I looks like this  . I cannot write anything else at all.

When I was about eight years old my father died. I don't know what sickness he had because he never saw a doctor. My grandmother treated him with homemade teas and herb medicines but he did not get well. I think he had T.B. (tuberculosis) because he coughed a lot. We had our own family burial ground on top of the hill and marked the graves with whitewashed stones. At least half the graves were of little children who died before they were three years old. My aunts had babies almost every year. They knew about half of them would die.

Lesson One

Soon after my father died I was sent to the city to work in the home of a wealthy Arab family. A lot of us country girls came to town to work as maids in exchange for our room and board. This meant my mother had fewer mouths to feed at home. The children in the family where I worked were mean to me sometimes but the father was not cruel. I had enough to eat and learned a lot just by keeping my eyes and ears open. I learned to count money, to iron and make beds (on the farm we children slept on straw mats), to cook fancy foods and to speak a little French. I was pretty homesick the first few years and I wished the family would send me to school. Slowly I got used to being away from the village. After all, I worked as a maid from age nine to age twenty! Now, when I go to the village to visit my mother, I hate walking up the mountain 3 miles from the bus and having no electric lights or gas stove. I am a city girl now. My baby was born in the hospital clinic and goes there for her shots. She drinks powdered milk called Nestle's from the grocery store. We are saving money for a second hand refrigerator and my husband wants to buy a motor cycle. Someday we might even have a television. And who knows what will happen to Jamilla? There is a good high school just three blocks from our apartment. I hope she will study hard and be a nurse. When you add it up, I've seen a lot of changes in my short life and most of them are good. Good luck to Jamilla and Allah be praised!

Activity II: Class follow-up to story. Teacher puts following headings on board:

1. availability of foods
2. money to buy foods
3. prevention of disease
4. treatment of disease
5. child labor
6. child education
7. knowledge of the world
8. planning for the future
9. role of women
10. closeness of family ties

Have students make up two lines of dialogue for each heading, one line showing Old Ways and one showing Changing Ways. Each line should be spoken by a character from the story. The lines should show contrast. For example:

Role of women: 1. I am Zorah's aunt. My job, as a woman, was to work on the farm, do all the housework, and bear as many children as possible.

2. I am Jamilla. I will go to high school when I grow up. Perhaps I will be a nurse. I will live in a town and will probably have fewer children than my aunt.

(If students need extra help getting started, teacher may furnish the names of speakers for each category. Names can be used more than once but should include mother, aunt, father, Zorah, dead children from cemetery, Zorah's husband, and Jamilla. Students should refer back to story for details.) Read and discuss dialogue for remainder of period, reserving enough time to explain homework assignment.

Homework: (see student package for separate sheet)

Learn as much as you can about the childhood of one of your grandparents or great-grandparents (either a grandfather or a grandmother). Talk to your grandparent if you can, or to your mother or another older relative. Try to answer these questions from your interview:

1. Did your grandparent grow up in the country, a small town, or a city?
2. Did his house have running water or a pump?
3. Did it have an indoor toilet or an outhouse?
4. Did your grandparent go to school? Did he finish high school?
5. Did he watch TV? Have a radio? Go to the movies?
6. Did any of his brothers or sisters die in childhood? How many, and from what diseases?
7. How many people lived in his house while he was growing up? Who were they?

Homework Continued:

8. What jobs or chores did he have while growing up? What work did his parents have?
9. What things about his childhood sound good to you?
10. Would you rather be living in your grandparent's time or as you are now? Why? Give at least 3 reasons.

Lesson One

Homework Assignment 1: Interview with a Grandparent

Use this sheet to take notes while you talk to your grandparent or another family member who can answer these questions about your grandparent. (This sheet will be turned in, so make notes as neat as possible.)

I chose _____ (grandmother or grandfather) I interviewed _____ (Grandparent) (mother) (other relative)

1. Did you (my grandparent) grow up in the country, a small town, or a city?

2. Did you have running water in your house or a pump?

3. Did your house have an indoor toilet or an outhouse?

4. Did you go to school? Where? Did you finish high school?

5. Did you watch TV? _____ Have a radio? _____ Go to the movies? _____

6. Did any of your brothers and sisters die in childhood? How many, and from what diseases?

7. How many people lived in your house while you were growing up? Who were they?

8. What jobs or chores did you have while growing up? What work did your parents do?

Maybe you can think of more questions you want to ask. Use the other side of this sheet for more notes if you want to. When you have finished the interview, answer these two questions yourself:

-What things about your grandparent's childhood sound good to you?

-Would you rather be living in your grandparent's time or as you are now? Why? Give at least 3 reasons.

LESSON TWO

Unit: Production, Pollution, Population: Issues for a Changing World

Topic: The Nature and Pace of Change in the Developing Countries

Objectives: The student will summarize some major changes in the developing world and examine how fast the "third world" countries are growing compared to the U.S.A. and Europe.

Materials: Summary Sheet: Changes in the Developing World
Graph: "Present Birth and Death Rates by Area" - Population Reference Bureau Data Sheet for teacher

Motivation-Drill: (opional) Choose 3 of these headings that were on the board yesterday. Write a sentence for each comparing your grandparent with Zorah's mother or father.

treatment of disease	role of women
child labor	closeness of family ties
child education	availability of foods

Example: Zorah's mother never went to school; my grandmother was able to finish the 9th grade.

Activity I: Teacher may "get ball rolling" by reporting her own interview with a grandparent. She may then ask each student to give a two minute oral report on his interview. (Students may present this interview reports in pairs, one student asking the questions and the other responding as though he were the grandparent.

Example: Student 1: Did you, grandmother Jones, live in the country, a small town, or a city?

Reporting Student: I was born on a farm and moved to Baltimore when I was 15.

Student 1 should first introduce the grandparent. Student 1 should also ask the last two questions of the student himself. After the interview, they can switch roles, or the teacher might suggest a "This is Your Life" format. Whatever approach, keep reports brief. Include all students who have done the assignment. Encourage others to make it up.)

In final discussion, make comparisons when possible between Zorah's story and grandparents' lives. Point out that many of the same changes that are taking place now in Zorah's country took place in the U.S.A. also, but several generations ago. Try to point out good things about the earlier family life styles (shared work; care for all relatives, no one turned out; mothers usually home to care for children; fewer dangers and temptations to get in trouble, etc.) Not all changes necessarily make people happier. To sum up, turn to Summary Sheet in student packet. Read together.

Summary Sheet

Changes in the Developing World:
Most good; Some Bad

I. Better nutrition, due to:

- a. better agriculture
- b. better transportation of foods
- c. more money to buy foods
- d. better understanding of what foods are nutritious

II. Fewer deaths in childhood, due to:

- a. better nutrition, resulting in less tuberculosis, measles, infections
- b. conquest of epidemic diseases
  1. immunizations against smallpox, polio, tetanus, diphtheria
  2. better water supplies, resulting in control of cholera, typhoid fever, diarrhea
  3. antibiotics against pneumonia, streptococcal infections, almost all infections
  4. decreased numbers of infected children to cause further spread

III. Higher aspirations (what you hope to get) for children, due to:

- a. less child labor
- b. more child education
- c. wider knowledge of the world...magazines, newspapers, TV, movies, radio
- d. more confident planning for child's future since fewer children die before growing up

IV. Weakening of family ties as people move to cities:

- a. Relatives no longer live together and share responsibility for young and old.
- b. Relatives no longer share work of land, house, and children.
- c. Family no longer held together by their land and what it supplies them. They must depend more on earning money; must have job training and be able to find jobs.
- d. Many outside sources teach values in the cities, not just the parents and the church. There are movies, TV, books, magazines, labor unions, political parties, Family Planning Posters, neighborhood gangs, etc.

Activity II: Refer to item II of Summary Sheet. Ask question, "What has this item (fewer deaths in childhood) meant to the growth rate of the developing countries?" Populations are growing faster because babies like Jamilla are no longer dying. Many, many more children are living to grow up. We are not like Zorah's aunts any longer. We do not expect half our babies to die.

Let's look and see how fast Zorah's country, Tunisia, is growing: (Teacher may hold up and refer to the Population Reference Bureau sheet here.) Teacher puts figures on board:

Tunisia: Annual births per thousand people - 38
Annual deaths per thousand people - 16

Time required for population to double - 32 years

U.S.A.: Annual births per thousand people - 15.6
Annual deaths per thousand people - 9.4

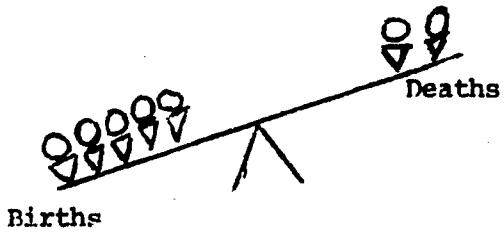
Time required for population to double - 87 years

Teacher should point out that Tunisians have more babies than Americans; our birth rates have come down. They also lose more people per thousand, although far less than they used to.

Look now at the graph in your student packet which shows present birth and death rates by area. (see graph at end of lesson)

1. Which continent has the largest number of births per thousand people? (Answer - Africa - 46 1/2 births per thousand. Each symbol counts 2)
2. Which continent has the largest number of deaths per thousand? (Answer - also Africa - 2 deaths per thousand.)
3. Are births and deaths in balance for Africa? (Answer - No - more than twice as many births as deaths. 46 1/2 - 20.)
4. You can see that none of the continents of the world are in balance. Populations are growing everywhere. Which continent is most nearly in balance (slowest rate of growth)? (Answer - Europe, made up of developed countries.)
5. Which continent is most out of balance (fastest rate of growth)? (Answer - Latin America. Not as many deaths as Africa, but many births.)

(Teacher may facilitate understanding of this graph by picturing births and deaths as on a sew-saw:



Out of Balance

She may be able to explain rate by naming a village of 1,000 people: "Thousand-town." How many births would occur there in 1 year ? How many deaths? In this case, the rate per thousand.

Summary of lessons 1 and 2: You can see that the world is growing very fast (more than twice as many people coming in as going out on your graph.) All those new people will need to eat. Many people are hungry now. So, tomorrow, we will look at the first major issue of the three we are going to study: will we be able to produce enough food as the world's dinner table gets more and more crowded?

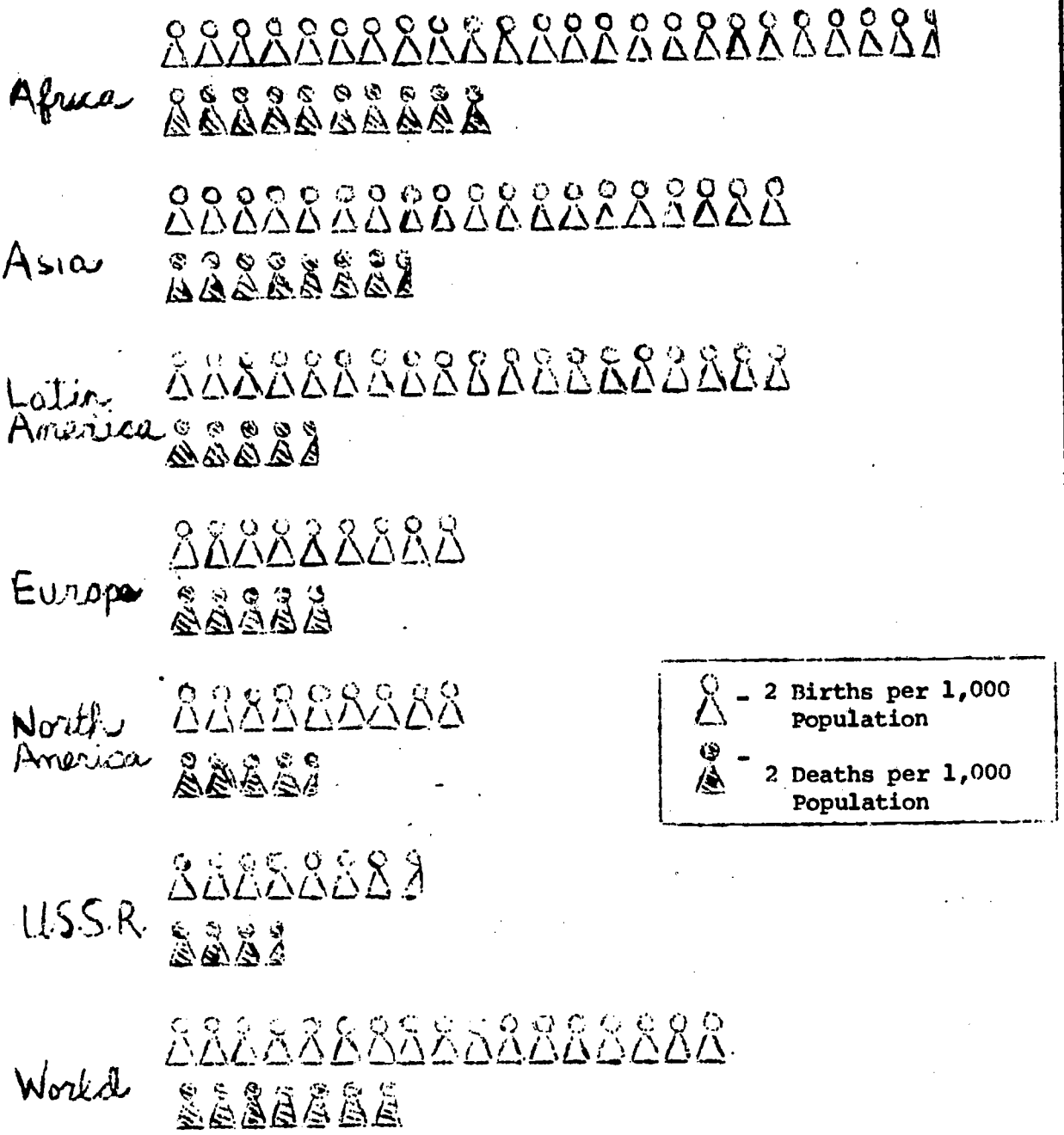
Homework: (see student package for separate sheet): Keep a record of exactly what you eat for the next 24 hours (until this class begins again tomorrow.) Put down everything: candy, snacks, sodas, all food at meals. Bring your list to class.

Homework Assignment II: 24-hour Intake Record

On this sheet, note down everything you eat for the next 24 hours. Include candy, snacks, sodas, all food at meals. Bring your list to class.

Time	Food Eaten	Date

BIRTH AND DEATH RATES BY AREA



SOURCE Population Reference Bureau, Inc. 1970 World Population Data Sheet, 1970.

1. Which continent has the largest number of <u>births</u> per thousand people?
2. Which continent has the largest number of <u>deaths</u> per thousand?
3. Are births and deaths <u>in balance</u> for Africa?
4. You can see that <u>none</u> of the continents of the world are in balance. Populations are growing everywhere. Which continent is most nearly <u>in balance</u> (slowest rate of growth)?
5. Which continent is most <u>out of balance</u> (fastest rate of growth)?

LESSON THREE

Unit: Production, Pollution, Population: Issues for a Changing World

Topic: Major Issues I: How can we produce more food when our planet has limited farmland?

Objectives: The student should understand the urgent need for greater food production and examine two ways of achieving same. He will realize that what sound like easy solutions are complex, with both good and bad results.

Materials: The Present Food Situation (Trans.)
The Suburbs and Other Stuff (Trans.)
Student group assignments I and II

Drill (Optional) Put questions on board:

1. How often did Zorah's village family eat meat?
2. How much of the year did they have fruits and vegetables?
3. What was their typical meal in winter?
4. Did you eat any meat in the last 24 hours? (describe)
5. Did you eat any fruits and vegetables? (describe)
6. Were you better nourished than a member of Zorah's family this last 24 hours, or worse? Why?

In reviewing drill questions, teacher may discuss value of "junk foods" (sugar; carbohydrates) vs. protein, vitamins, minerals. Keep brief. Then teacher should write on the board the two words malnourished - (enough bulk, but too little protein; too few vitamins and minerals) and undernourished - (not enough food of any kind; too few calories).

Before collecting homework papers, she may ask students to look over their 24-hour Intake Records and write at the bottom whether they think they were well nourished, malnourished or undernourished for that day.

Activity I: Teacher should show trans. The Present Food Situation also, The Suburbs and Other Stuff. Let these "sink in" with just a few comments. Then begin explanation of group reports.

There are two basic ways we can try to produce more food for increasing numbers of people. Both ways sound pretty simple, but neither is as simple as it sounds. We will divide the class into two groups so that each can teach the other about one way of trying to grow more food.

The first thing we can do is (put on board as Topic I.) Open up New Farmland. More land will certainly equal more crops. What desert areas have you heard of where crops are now being grown? (Arizona, California, Israel) What must be done to make these deserts arable? (Irrigation. Put on board under Open up New Farmland.)

The pioneers worked hard to open up new farmland. How did they do this in our part of the U.S.A.? By clearing forests (write on board under Irrigation.) Can't we continue to cut down trees and make new fields, especially in the vast jungle rain forests of the world? Group I will be able to tell us tomorrow.

The second hope for harvesting more food is to grow more food on what land we already have (put on board as Topic II.) This is being tried in many countries. The experts have called it the Green Revolution. If a farmer can grow two or three times as much wheat or rice each year from the same land, won't our problem be solved? Group II will be able to answer this question tomorrow.

Divide class into two groups and indicate Group Report Instructions I and II in student packet. Have groups read materials for their reports. Teacher should help each group plan presentation. If she has time to provide a collection of appropriate pictures, this would help enliven group reports. Perhaps the librarian can provide some if forwarded. Some very simple costumes or hats might be fun for skits.

Homework: Read materials and prepare your part in the group reports for next class.

Transparency

The Present Food Situation

Item: "If all food in the world were equally distributed and each human received identical quantities, we would all be malnourished." (George Borgstrom, "The Dual Challenge of Health and Hunger - A Global Challenge")

Item: 20% of the people in underdeveloped countries are undernourished.
60% of the people in underdeveloped countries are malnourished.

Item: In 1970, food production in the underdeveloped countries rose 1%. In 1970, population in the underdeveloped countries rose about 3%.

Item: The "average American" eats over 4 1/2 pounds of food a day and gets around 3,200 calories. The "average Indian" eats around 1 1/4 pounds of food a day and gets around 2,000 calories.

Item: "...The world has failed to provide for even half the 3.5 billion people alive now. To give our current population a minimally sound diet would require the immediate doubling of world food production." - (George Borgstrom "The Dual Challenge of Health and Hunger - A Global Crisis")

Transparency

The Suburbs and Other Stuff

Item: Surrounding Disney World are acres and acres of orange groves. The following sign appears in most groves: For Sale.

Item: Central Cities are losing population. Farms are losing population. What about the Suburbs?

Item: Towson, Maryland Population 1960 - 19,090
1970 - 77,809

Item: Motor vehicles in U.S. 1960 - 74 million
1970 - 108 million

Item: Total farm acreage in U.S. 1960 - 1,177,000 acres
1970 - 1,114,000 acres

Group I Assignment Sheet: Opening up New Farmland

1. Read the 3 reference pages for your group. Make notes to summarize the good results and the bad results of irrigation and clearing of forests.
2. Choose a group discussion leader. Discuss the good results and bad results and make sure everyone in the group understands the articles well.
3. Decide how you will present the good and bad points to the class. You could do it as a skit:

   Act I: The Egyptian Minister of Agriculture and his Russian advisor make a speech to the people explaining where the dam on the Nile will go and why it will be helpful to the farmers. (Show map of Egypt.)

   (Later) Three farmers and a fisherman enter:
   First farmer: tells how he hasn't enough money for fertilizer. He used to depend on silt.

   Second farmer: tells how salt has killed his plants.

   Third farmer: tells why his wife has shistosomiasis.

   Fisherman: tells why his catch is so low.

   Act II: A similar skit on forests.

   You will need someone to summarize at the end that not all solutions are simple: "You can never do merely one thing."

4. Have each person prepare his own lines for the skit. Read it through at least once together before you present it.

Lesson Three

Group I Reference I

Irrigation for Increased Farmland

Mankind has used irrigation for at least five thousand years to provide land with a consistent supply of water. The ancient Egyptians, Chinese, Sumerians, and Assyrians all depended on irrigation to supply their civilizations with food. Obviously, then, irrigation is a tried and true method for opening up new farmland. Irrigation can make deserts into arable land.

China and India have the most irrigated land among the nations of the world. This land has not been irrigated by huge dams built with modern machinery and technology, but by small ponds and ditches built by manual labor and small-scale machinery. Countries like Mexico and Egypt have mounted large-scale irrigation projects - using modern technology to build huge dams. But, as it turns out, you don't get something for nothing. More land can be farmed as a result of big irrigation projects, but what other effects do these projects have?

1. Dams and canals use up about one fourth of the land.
2. Dams don't last forever. As rivers flow along, they pick up silt. When the water comes to a virtual standstill behind a dam, this silt falls out of the water and eventually fills in the dam.
3. In drier regions, the irrigated land often begins to turn whitish due to a process call salinization. The land becomes whitish because it is becoming very salty. Salinization simply means a build-up of salt in the soil. How does this happen? Normally, a plant takes in water and uses the minerals (such as salts) to grow. In dry areas which are being irrigated, however, the irrigation water evaporates very quickly in the hot sun, leaving salts behind in the soil before the plants have had time to take the water in. The plants cannot handle these large amounts of salt and become unhealthy and eventually die.*

*George Borgstrom, Too Many, pp. 184-191.

Group I Reference II

The Aswan Dam, A Case Study

The Aswan High Dam is probably the world's most famous dam. Built by Egypt, with Russian financial and technical help, the Aswan Dam is intended to provide electricity and water for irrigation along the Nile River valley. Water used to be available for farmers only when the river flooded its banks. Now the dam makes possible a regular supply of water for irrigation all through the year.

A bit of history first. Like other early civilizations, the ancient Egyptian civilization began along a lush river valley. The plentiful water and good farmland gave the ancient Egyptians a steady and generous food supply. Each year the Nile overflowed its banks. When it receded, it left a fresh new layer of silt behind. Replenished each year by the Nile's flooding, the Nile valley has been farmed for over 5,000 years.

What have been the results of building a dam across the ancient river? First of all, the Nile no longer overflows. Since the farmers no longer have their soil replenished by the floods, they must now use artificial fertilizers. It costs a lot of money to buy fertilizers and few Egyptian farmers can afford to buy the necessary amounts.

Secondly, since irrigation leaves salt in the soil, due to evaporation, one third of the water currently being used must serve just to wash away the salt. Otherwise, the salt would ruin the soil for growing food. Only about one fourth of the water is directly used for irrigation.

Because the Mediterranean Sea no longer receives the minerals and nutrients supplied by the Nile flood, the fish catch has fallen off. The loss of food is significant; the sardine catch has fallen from 18,000 tons a year to only 400 tons a year.

Finally, a disease called schistosomiasis has been on the increase. A serious disease, schistosomiasis is caused by a worm carried by snails. Irrigation has given the snails a constant water source, which they need to survive. Previously, the number of snails was kept down by the lack of necessary water during the dry season. With the snails doing well now, schistosomiasis has spread, infecting up to 75% of the people in some villages. This infection has a further effect on the food supply: sick people are not able to work as hard and produce as much food as healthy people.

Sources: Garrett Hardin, Exploring New Ethnics for Survival, pp. 40-41
George Borgstrom, Too Many, pp. 110-111, 201

Group I Reference III

Clearing Forests for Increased Farmland

One method for opening up new farmland is cutting down forests. Obviously much forest land has already been converted to farm land. All of the Eastern United States was originally forest. Have you seen any early pictures of Baltimore? It was surrounded by woods. It was not hard to cut them down and make good farms. But there are some good reasons not to clear the few remaining forests of the earth:

1. Forests are needed as fuel and timber. Wood is used as fuel for cooking by about two-thirds of the people in the world. Remember that Zorah's family gathered wood to heat their ovens? Where there is not enough wood, people use cow dung, which could be better used as fertilizer. Forests also provide pulp for paper and timber for homes.

2. Forests prevent erosion. Forests help control erosion (loss of soil) from farmland. The roots of trees absorb rain water, keeping huge amounts of runoff from washing away the top-soil and causing floods. Forests make rain water run off slowly, over a period of time. Forests also work as windbreaks, slowing down winds and thereby controlling the wind erosion. Have you seen windbreaks of trees around apple orchards or orange groves?

3. Many forests are tropical rain forests (fungle). Since tropical rainforests get huge amounts of rain, they would seem to have great potential as farmland. Without that protective forest, however, the heavy rains wash away soil and minerals. Direct sunlight raises the soil temperature, killing living organisms in the soil which help make it productive. The best way to farm tropical rainforests seems to be to cut down the trees in a long, narrow strip and farm this cleared land only a few years. The land is then allowed to grow over and become forest again before the soil is ruined.

Group II Assignment Sheet: Growing More Food on the Land We Already Have

1. Read the 2 reference papers for your group. Make notes to summarize the good results and the bad results of the "Green Revolution."
2. Choose a group discussion leader. Discuss the good and bad results and make sure everyone in the group understands the articles well.
3. Decide how you will present the good and bad points to the class. You could do it as a skit:

   An Indian Government Agricultural Expert talks to a group of Indian farmers about the advantages of switching to miracle rice or wheat. (Two or three crops per year, and more yield per acre.) He tells farmers what they will need to grow the new crop. (irrigation, fertilizer, pesticides)

   Four farmers will discuss whether they should experiment with something so expensive:

   First farmer asks how he will get the training.

   Second farmer asks how he will borrow the money and whether he will get a good price.

   Third farmer wonders how he would store so much grain and get it to market.

   Fourth farmer discusses the risks of growing only one crop. What if it fails?

   The fourth farmer, who is wealthier than the others, decides to plant the new seeds. The other three farmers decide against it and tell why.

   You will need someone to summarize at the end that not all solutions are simple: "You can never do merely one thing."

4. Have each person prepare his own lines for the skit. Read it through at least once together before you present it.

Group II, Reference I

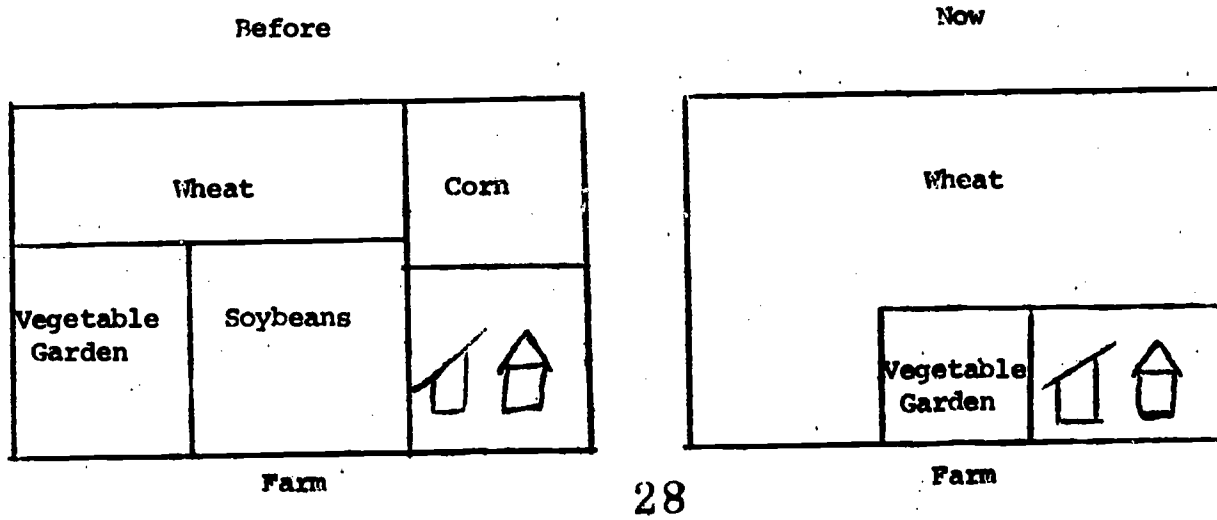
The Green Revolution

Since the world's best farmland is already in production and the costs and difficulties of opening up new farmland are enormous, a more promising approach to improving the food situation has been the "Green Revolution." The Green Revolution seeks to provide more food by greatly increasing the yield per acre of farm crops.

How is the Green Revolution to come about? The first big change (especially for farmers in underdeveloped countries) is the extensive use of fertilizer. The second big change is in the crops themselves. Throughout history, many farmers have grown only one crop a year and that has been a local crop. The crops grown by a farmer in India were not the same as the crops grown by a farmer in the United States. Now, however, the Indian farmer grows the same kind of wheat as a Mexican farmer. Why? Because these new grains ripen faster and the farmer can grow two crops of grain per year instead of just one. In addition, the new grains give more yield per acre. (These new kinds of grain are actually dwarfs. The intensive use of fertilizer made the old, taller grains grow so high that they fell over and were ruined. The dwarfs are shorter and can hold the extra grain.) The final big change is the use of pesticides to control insects which feed on crops.

Of course, "You can never do merely one thing." What else does the Green Revolution do besides increase crop yields? The heavy use of fertilizers and pesticides causes pollution problems. One effect may be to reduce the number of fish in nearby waters. These fish, of course, are part of the food supply.

Secondly, since there will be fewer kinds of grain, the world's food supply will be more open to damage from pests. Previously, local crops of various kinds were grown. Pest damage to one kind of crop did not often affect the other crops. But now, a farmer or country may grow one main, high-yield crop. If pests damage that crop, there are no other crops to fall back on, and the farmer is ruined for that year. His country may have to buy from other countries at great expense.



Group II, Reference II

The Green Revolution

"The application of science and technology to traditional agriculture has begun to produce dramatic results, above all in Asia," says Clifton R. Wharton, Jr., writing about the Green Revolution. "Some observers believe that victory is in sight in the War on Hunger. Others see this development as opening a Pandora's box; its very success will produce a number of new problems which are...subtle and difficult..."[1]

Most of the problems caused by the new seeds and farming methods are being faced by the small peasant farmer like Zorah's father. First, he must be taught new farming skills: "different planting dates and planting depths; fertilizer rates and timing; insecticide, pesticide and fungicide applications; watering and many others."[2] If there is no one to teach him these new skills, he will not have success with his miracle seeds.

Second, he must have money. The fertilizers and pesticides are expensive. Without them, his new seeds will not grow. The cost of raising a crop may be ten times greater for him: $200 instead of $20 dollars, for example. He will have to be able to borrow money. He will earn more when he sells his crops, but he must "have access to substantially greater credit to finance his operations."[3] The village money lender will not do.

Third, he must be able to store his harvests and get them to market. There may be difficulties if the new harvest comes during the wet season and the grains cannot be dried by the sun. "In 1968, the Indian Food and Agricultural Ministry estimated that ten percent of the harvest was eaten by rats."[4] The farmer must be able to get his crops to the city market before they rot or are destroyed.

Fourth, he must be assured a good price. If too much "miracle" grain floods the market at the same time, the prices may go down and the poor farmer does not receive enough to pay his debts. Governments must have wise pricing policies so that the farmer, not just the middle man, makes a profit on his harvest.

You can see that the small farmer is taking some big risks when he decides to try the new seeds. If the very survival of his family depends on the food he grows, as in the case of Zorah's family, he may be very reluctant to experiment with something so risky. "These things are for the rich landlord, not for me," said one poor farmer in Calcutta, India.[5]

It is true that the wealthier farmers are already "more advanced, literate, have better soil, better water management, closer access to roads, and markets."[6]

1. Clifton R. Wharton, Jr., "The Green Revolution: Cornucopia or Pandora's Box", Foreign Affairs, April, 1969, pp. 464-476
2. ibid.
3. ibid.
4. Michael Perelman,"Second Thoughts on the Green Revolution", The New Republic, July 17, 1971, pp. 21-22
5. ibid.
6. Clifton R. Wharton, Jr., op. cit.

They are less afraid to borrow money. In many places the Green Revolution has already meant that the rich farmers have become richer and the poor farmers have become poorer.

Another problem posed by the new seeds is that they will only work their miracles where the land is well irrigated, and "there just isn't very much irrigated land...Of course, new lands can be irrigated through construction of dams and aquaducts, but such projects are expensive and few developing nations can afford them without massive outside aid."[7] If governments spend huge amounts of money on dams, they will have little left for housing, health-care, education and other services for their growing populations.

The Green Revolution offers great possibilities but also great challenges for a world which desperately needs to produce more food.

7. Michael Perelman, op. cit.

LESSON FOUR

Unit: Production, Pollution, Population: Issues for a Changing World

Topic: Major Issue I: How can we produce more food when our planet has limited farmland?

Objectives: (Continuation of previous lesson) The student should understand the urgent need for greater food production and examine two ways of achieving same. He will realize that what sound like easy solutions are complex, with both good and bad results.

Materials: Student assignment packets from lesson three
The News American Filmstrip, Must the World Go Hungry? and discussion questions (optional)
Any hats, costumes, props or pictures for group reports
Sum-up Sheets for group reports (student packet)
(Filmstrip can be found in your school's Social Studies Department.)

Drill - Motivation: (optional - Teacher may prefer to have students go directly into their groups.)

1. More than half the people in underdeveloped countries are (well nourished, undernourished, malnourished).
2. The areas in the U.S.A. that are growing in population are the (cities, farms, suburbs).
3. Towson has (doubled, tripled, quadrupled) from 1960-1970.
4. Two ways to increase the world's food production are:
   a. (open up new farmland)
   b. (grow more food on the land we already have)

Activity I: Hopefully, students will have read the reference materials for their reports and prepared their parts for the group presentations. Realistically, they will need to spend at least 15 minutes getting themselves together and rehearsing their skits. The teacher should circulate between groups and offer help and inspiration as needed.

Activity II: (optional): The News American Filmstrip, Must the World Go Hungry, is a good follow-up on this issue. If there is time, the teacher may use it here. If not, it may be used in lesson nine as one of the wrap-up activities. Discussion questions on the filmstrip are included here (optional.)

Homework: Discussion questions on the filmstrip (optional). Complete Sum-up Sheets for Group I and Group II reports (all students should complete both sheets, or bring in magazine or newspaper articles which talk about the food crisis either in the U.S.A. or in other countries. (This could be an on-going activity.)

Lesson Four Sum-up Sheet

Group I, Opening Up New Farmland

I. A. What is the first major way more lands can be made arable?

B. What are some of the problems that come with irrigation?

1.

2.

3.

C. Know the vocabulary words: silt, salinization, arable

II. A. What is the second major way more lands can be made arable?

B. What are two good reasons not to clear our remaining forests?

1.

2.

C. Why can't tropical rain forests be cleared and used for large scale farming?

Sum-up Sheet

GRoup II, Growing More Food on the Land We Have

I. What is meant by the Green Revolution?

II. Why is <u>pollution</u> one of the problems of the Green Revolution?

III. What is the danger of growing the same kind of miracle wheat all over the world?

IV. Give 3 reasons why a poor farmer like Zorah's father might decide <u>not</u> to try the new miracle seeds?

1.

2.

3.

Discussion Questions for Filmstrip

Must the World Go Hungry

1. Explain what the old Chinese philosopher meant when he said: "Is it only the mouth and belly which are injured by hunger and thirst? Man's minds are also injured by them."

2. What happens to a child who has protein deficiency?

3. Explain this sentence from the film: "Hunger and malnutrition in the United States are largely a matter of distribution...not of availability."

4. What groups of people in the U.S.A. most often suffer from undernourishment or malnutrition?

5. How does the Food For Peace program (Public Law 480) work?

6. Why do hungry people reject some foods? Would you object to eating horsemeat, goatmeat or dogmeat?

7. Give two examples of the fact that as the film says, "Environmental protection and increased production are often at loggerheads."

8. Do you agree that rich nations such as the U.S.A. should help feed the poor nations of the world? Give reasons for your opinion.

LESSON FIVE

Unit: Production, Pollution, Population: Issues for a Changing World

Topic: Second Major Issue: Can the World's people have the things they want for a "good life" without using up our natural resources and polluting our planet to death?

Objectives: The student will realize that "development" or "modernization" means more and more consumption of manufactured goods all over the world. He will look at consumption in Zorah's family, in his own family, and in the U.S.A. as a whole. He will consider the very limited natural resources we have left to support increasing industrialization.

Materials: Introduction/Motivation Worksheet (student package)
Trans., U.S. Homes with Selected Electrical Appliances
Trans., Natural Resources: How Long Will They Last?
Homework Assignment: Twenty-four Hour Throw-out Record

Drill: (optional)

Yesterday's reporters said that "you can never do only one thing." Give an example of both a good and a bad thing caused by:

1. irrigation by use of large dams
2. cutting down of forests for new farmland
3. introducing the "miracle seeds" of the Green Revolution.

Activity I: (includes motivation)

Ask students to turn to their Lesson Five Introduction: Production and Pollution. Teacher should read aloud as they follow, stopping for comments and brief discussion: (next page)

Production and Pollution

Student Work Sheet

Thanks to your good reports, we have an idea of how complicated it is to try and grow more food. We have hardly even mentioned the problems of getting the food to the people who need it and figuring out how the really needy people are going to pay for it. (Our own government has tried food stamps and school feeding programs. Do you think these have been successful?) It is clear to any shopper that as food becomes more scarce, prices are going higher and higher.

As you know, however, Zorah and her family want more than just enough to eat. What things does Zorah hope to own that her mother never dreamed of owning? (List on board T.V., refrigerator, motorcycle)

Look at the following list and underline the appliances you have in your house:

1. Television (Black & White)
2. Television (Color)
3. Refrigerator
4. Freezer
5. Air Conditioner
6. Vacuum cleaner
7. Electric drill
8. Electric sander
9. Stereo recorder player
10. Tape recorder
11. Washing machine
12. Dryer
13. Electric can opener
14. Electric tooth brush
15. Electric shaver
16. Electric hair dryer
17. Others? _____

Now put a star in front of the ones your grandfather might have had when he was a boy. How many were in use 40 years ago?

(Discuss briefly increased consumption of manufactured products.)

Now, what connection does a television or a hair dryer have with the world's natural resources? (Discuss: More televisions mean more use of finite natural resources, including energy.)

As we Americans and other people all over the world (like Zorah) buy more and more goods, our natural resources are being used up faster and faster.

Activity II: Transparency

U.S. Homes with Selected Electrical Appliances

(Based on Homes Wired for Electricity)

(In Millions)

Item	1960	1971
Air Conditioners	7.8 (15% of homes)	29.2 (45% of homes)
Electric Can Openers	2.5 (4.8% of homes)	31.5 (48% of homes)
Dryers	10.1 (19.6% of homes)	31.2 (47% of homes)
Refrigerators	50.8 (98% of homes)	65.4 (99.8% of homes)
Television (B. & W.)	46.2 (89% of homes)	65.4 (99.8% of homes)
Television (Color)	Not available in 1960	33.5 (51% of homes)
Vacuum Cleaners	38.4 (74% of homes)	61.9 (94% of homes)

Source: Statistical Abstract of the United States, 1972 - p. 691

Point out the name of the chart (U.S.A - Not World) and that figures are in millions. Then begin analysis of figures:

Most of you were probably born in 1960 or close to that date. Let's look at the chart and see what Americans owned way back in "those days." (Teacher may enlist answers to the following questions informally and put answers on the board. Once the students understand how to read the chart, they may ask each other questions which they make up. The last question could be the basis of a writing assignment or a debate. Activities can vary depending on the ability of the class and the teacher's imagination.)

1. How many clothes dryers did Americans own in 1960? (10.1 million)
2. What percentage of American homes had clothes dryers in 1960? (19.6%; almost 20% or 1/5 of homes)
3. By 1970, how many clothes dryers were blowing away in America? (31.2 million; 3 times as many)
4. What percentage of families owned clothes dryers now? (47%, nearly half)
5. Which appliance increased the most in numbers during the eleven years (do not count color television which was not yet being sold in 1960)? (Electric can openers: increase of 29 million)
6. Was this also the biggest increase in percent? (yes: 43.2% increase)
7. Do you think we should use our natural resources and energy to make electric can openers? (yes or no, but stress they are a luxury item: nice to have but not essential)
8. How many other items on the list would you consider luxury items?
9. Which two items seemed to be most important or essential to Americans in 1971? (refrigerators and televisions: almost 100%)
10. Which would you rather give up if times got hard and natural resources ran low, a refrigerator or a television?

You can see from the chart that Americans are buying more and more goods. Not only are there more Americans (the population is growing), but each family now owns more (per capita consumption). The scientist's name for this kind of double increase is expontential growth (teacher may develop; relate to exponents in math - etc. - if she wishes. Not necessary.) How long can it go on?

Transparency: Natural Resources: How long will they last? (next page)

Natural Resources: How Long Will They Last?
If our resource use continues to grow at exponential rates

Aluminum will last	31 years
Coal will last	111 years
Gold will last	9 years
Iron will last	93 years
Natural Gas will last	22 years
Petroleum will last	20 years
Tin will last	15 years
Tungsten will last	28 years

Source: The Limits to Growth, A report for the club of Rome's project on the predicament of man kind. D.H. Meadows, D.L. Meadows, J. Randers, and W.W. Behrens, III, Universe Books, New York, 1972

You can see from the chart that our planet has a very limited supply of natural resources. Do you think there will be enough for your grandchildren to have a television? How about Jamilla? Do you think Americans would be willing to buy fewer appliances so that our resources would last longer? If you look back at the list on the sheet called Production and Pollution, how many items would you be willing to forget about? (Discussion may be long or brief, as time allows.)

Naturally, the more the world's factories chug away producing material goods, the more pollution they produce. Tomorrow we will look at the siamese twin of Production: Pollution.

Homework: Keep a record of everything your family throws away during the next 24-hour period. Go through the trash cans and waste baskets. See what gets thrown out and how much. Use the homework assignment sheet for your record. (See student section.)

LESSON SIX

Unit: Production, Pollution, Population: Issues for a Changing World

Topic: Second Major Issue: Can the World's people have the things they want for a "good life" without using up our natural resources and polluting our planet to death?

Objective: The student will realize that "modernization" means not only more and more consumption of manufactured goods, but also an increase in pollution all over the world. He will look at pollution generated by Zorah's family, by his own family, and by industry.

Materials: Student Worksheet: The Steel Plant
Summary

Drill: (optional - review questions from lesson five)

1. What connection does a television have with Earth's finite size?
2. What has been happening with the use of natural resources in our country?
3. What word describes the kind of speed with which our resources are being used up? (exponential)
4. Is usage of natural resources growing faster or slower than population? (faster. Not only are there more people, but each person is buying more.)

Activity I: The teacher begins by writing on the board, "Affluence increases pollution. The more affluent the family, the more they pollute." Let students ponder this a minute. Ask what affluent means. Try reading, "The more wealthy the family, the more they pollute." Then go on, "Let's test out this statement and see if it is true. Maybe it is; maybe it isn't."

Think back to Zorah's village family where she grew up. Did they pollute in any of the following ways? (Teacher may put this list on the board as she asks each question, or she may duplicate the list and pass it out.)

Did they 1. drive gas-powered cars?
tractors?
motorcycles?
lawn mowers?
trucks?
boats?
(No, power was camel, bicycle and feet. No exhaust.)

2. flush toilets? (No - used out house. No sewage)

3. throw out for burning or dumping coke bottles?
chewing gum wrappers?
broken toys?
disposable diapers?

(continued on next page)

3. (continued) plastic bags?
McDonalds plates & cups?
beer cans?
old light bulbs?
broken record players?
TV dinner trays?
(No. None of these. Very little trash: no wrappings. How much of what you bring home from the supermarket is plastic and paper?)

4. burn oil in a furnace for central heat? (No. No air pollution except from cooking fires.)
5. pour washing detergents down the drain? (No. Washed with sand and stones.)

Even though Zorah's extended family was a big one, at least 25 people, they lived off the land and created very little pollution.

Now let's see how much your families throw away. (Go over homework list; then collect.) It will break the ice if teacher will start with her own. Be careful not to let anyone feel criticized or defensive. Keep tone light and reports brief. See whether bigger families had more trash; whether other factors entered in such as baby in household, big shopping done that day, party, etc.)

Next, let's look at Mr. Millionaire with a wife and only one child. Would his family pollute less than yours because it is so small? He may have fewer trash bags, but what about the exhaust from his 3 cars? What else might he own that would make his pollution more than yours? (enlist answers: private plane, yacht, several homes all with central heat, air conditioning and appliances of all kinds...)

Next, look back at the statement on the board: "Affluence increases pollution." Teacher should write under it, more people = more waste, but richer people = even more waste.

The U.S.A. is the richest nation of all. We have only 6% of the world's population, but we use 50% of its natural resources. And - how much trash per person? In 1970, every American put 5 pounds of waste on the nation's dumps every day. We could certainly win the international trashball contest!

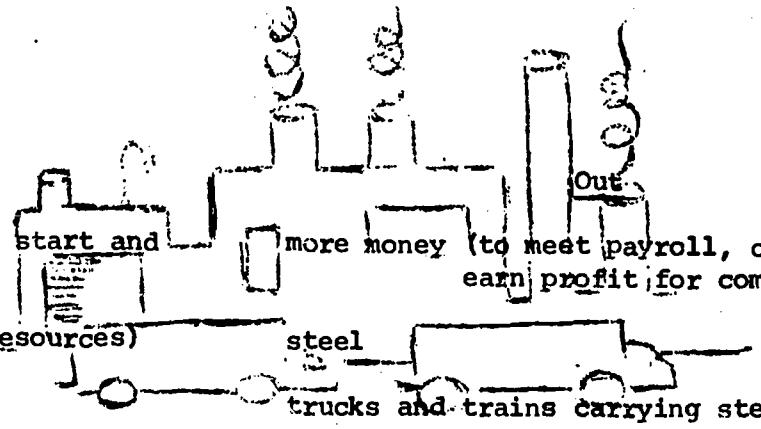
Activity II: Teacher puts on board automobile figures from lesson three. Remember these figures on our biggest polluter? What is it?

Motor Vehicles in U.S.A. 1960 - 74 million
1970 - 105 million

The number of cars in the U.S.A. is growing even faster than the number of people.

Let's consider a factory which produces steel for all these cars, like Bethlehem Steel. Let's ask what goes into the factory and what comes out. (Turn to Worksheets in Student Package.)

Student Worksheet:



In	Out
money (big investment to start and keep running)	more money (to meet payroll, cover costs, earn profit for company)
raw materials (natural resources)	steel
energy	trucks and trains carrying steel
workers (jobs for the community)	wastes
trucks and trains carrying raw materials	smoke and fumes
	noise (machinery, trucks and trains)

Read through the In and Out Chart together, stopping briefly for discussion. Then ask students to put a plus (+) in front of the 3 things they think assets to the community which has the factory (in this case, Baltimore.) Then put a minus (-) in front of 3 things they consider bad for the community.

Discuss the following questions and have students note answers on worksheet.

1. Is there any way a plant can cut down on the water, air, and noise pollution it produces? (filtering; recycling the waste products, etc.)
2. Where would the money have to come from for such clearing up? (out of profit for company. Point it out on chart and stress expense, reluctance of management to spend that money, especially as costs of raw materials go higher and higher because of scarcity.)
3. Are there any ways the government can act to clean up industrial pollution? (Laws for environmental controls with heavy fines on violaters; financial aid, tax benefits, loans, etc., factory owners to help them cover the costs.)
4. Why is the Congress so slow in passing such laws? (pressure from big companies)

Summary: Unfortunately, people pollute. Some of it they can't help, some of it they can. The richer they are, the more they pollute. People in poor countries carry their unwrapped groceries home in a basket. People in rich countries carry their groceries home in huge paper bags and everything is super-wrapped in throw-away plastic, paper, cardboard, aluminum foil and styrofoam. Poor countries have fewer factories: less pollution but fewer jobs. Rich countries have more factories and more jobs but are facing real problems of pollution as well as inflation from the scarcity of natural resources. The poor want to be rich, and the rich certainly want to stay rich. Let's hope our Planet Earth can survive! (Can you think of any ways to help it?)

Homework: Draw a cartoon to illustrate something from this lesson. Here are some suggestions:

1. Every American put 5 pounds of waste on the nation's dumps every day.

2. The United States has only 6% of the world's people, but uses 60% of the world's natural resources.

3. "Affluence increases pollution."

Note to Teacher on Lessons

Seven and Eight

These two lessons deal with the following theme: "Do all people agree that population growth should be slowed down? What are the attitudes of various groups in the U.S.A. and the world?"

The question of attitudes involves policies towards family planning. We have presented the attitudes of some groups and governments. We have purposely not gone into detail about specific methods of family planning. We have not, for example, stated the attitude of any group towards abortion or the contraceptive pill. The teacher may follow this format, or go into more detail if she wishes. For our purposes, a definition of family planning as "helping a couple to have the number of children they want and at the time they want" is sufficient.

LESSON SEVEN

Unit: Production, Pollution, Population: Issues for a Changing World

Topic: Third Major Issue: Do all people agree that population growth should be slowed down? What are the attitudes of various groups and governments in the U.S.A. and the world?

Objectives: The student should realize that policies about population growth may infringe on the freedom of each man and woman to have children. He will judge whether various policies are morally acceptable or inacceptable for him. He will consider the attitude of the U.S. government and of various groups within our country.

Materials: Lesson Seven, Introduction: How Many are Enough?
Reading: Organizations and Attitudes

Drill: There is no drill suggested for this lesson as students can begin immediately to read the Introduction for this last major issue. (see student package).

Activity I: Teacher and students may read Introduction together:

How Many are Enough?

We are past the half way mark in this unit now. Let's stop and sum up the big issues before we move on to the last one. We have seen that:

1. The poor nations of the world are changing very fast. They are growing in numbers of people much faster than the U.S.A. and other "developed" nations.
2. They are growing also in aspirations. People like Zorah want more material goods. They want to live in cities with electricity, running water, health clinics and schools. They want a higher standard of living.

We have seen that the increasing numbers and aspirations of the world's populations pose two major problems:

1. Can we increase food production enough to better feed and nourish future generations?
2. Can all countries develop as they want to without squandering our limited natural resources and polluting the land, water, and air of our small planet so that it will not support life for our great grandchildren at all?

As you have seen, we cannot give certain answers to these questions. The third issue is a complicated one also: Do all countries agree that they should slow down their population growth? What steps are legal and fair for a government to take if it wants to encourage smaller families?

Activity I: The teacher should begin by asking students to pretend they are the president of a fast-growing country like Tunisia, Brazil or India. The president knows there will not be enough schools, housing, jobs, or money for a population that is growing so fast because the country is very poor. He would like his people to have smaller families. Here are some steps his government might take. Some of them have actually been taken by various countries. Read them through first. Then decide which steps you think it would be morally acceptable to take.

(The teacher puts on transparency "Let's Not Grow Too Fast".

Have students write down the numbers of policies they approve of and disapprove of. Have brief debate or discussion on each policy. Remind students that the president is sure these steps are for the good of the people in the long run. Do not imply that any answer is right or wrong. Do not let debate go on more than 10 minutes. The point is to see that there are many approaches, some more restricting of individual freedom than others.

(Teacher may then put up next transparency, "Let's Not Grow Too Fast,Follow-up", or she may use the text for her own informal presentation without the transparency.)

Transparency

Let's Not Grow Too Fast

My country is growing too fast. As president, I think we should:

1. oblige families with over two children to pay an extra $100 a year "large family" tax.

2. offer free government scholarships to college for students from 2-children families only.

3. pass a law that girls may not marry before age 21; boys before age 23.

4. offer free family planning advice and services at all health clinics.

5. pass a law that any woman who has a baby when she is not married must pay a $100 fine.

6. offer a prize of $100 to all women who by the age of 45, have had only two children.

7. oblige all couples applying for a marriage license to meet with a nurse-counselor who explains to them the importance of not having too many babies too close together.

Transparency

Let's Not Grow Too Fast

Follow-up

As you can see, your classmates, all Americans, have lots of different opinions on what kinds of limits should be put on the freedom of each man and woman to have children. What seems right to one does not seem right to another. And it would be pretty hard to persuade you to change your minds.

The nations of the world are the same way. Some are using very persuasive steps to promote smaller families. Others do not even want to slow down their population growth. The U.S.A. is somewhere in between, although, as you can see from your own responses, not all Americans agree.

Activity II: (The teacher will lead this discussion of the U.S.A.)

Let's look again at the president's list (show transparency again). Does our government use any of these ways to persuade Americans to have smaller families? (Go over each item briefly. Notes here are simply a guide.)

1. (taxes) In the U.S.A., large number of dependents are a tax advantage as deductions.
2. (scholarships) No such government policy
3. (marriage age) The legal age is determined by each state, but none is so high as these. In Maryland, without parents' consent, it is 18.
4. (clinic services) Some government health clinics offer family planning services but not all. Hospitals may choose to offer or not. Most Baltimore hospitals do, but not all (religious views). Not free to everyone; only to those with Medical Assistance or other insurance.
5. (fine for unmarried mothers) Does not exist in U.S.A. Unmarried mothers without support receive Aid to Dependent Children.
6. (prizes for 2-child family) Does not exist.
7. (counseling of couples) Does not exist unless they ask for it at church, clinic or Planned Parenthood.

Question for class: If our government uses none of these methods, why is it that Americans in general are having fewer children than they did only twenty years ago? (The teacher may put these reasons on the board, adding others from discussion:)

Since the World War II "baby boom", our birthrates have come down without a strong government program because:

1. Couples are deciding when they want to have children. They are planning their families and not just leaving it to "Fate."
2. More women are working and going to college.
3. People have high hopes for their children; to educate them costs more money; they cannot care for too many.

We said that Americans in general are having fewer children. This is not true for everybody. Here are two groups with very different attitudes. Do you know how each one feels about family size? (The teacher may put on the board.)

N.O.W. (National Organization of Women)
Black Power Groups

The teacher may choose to add N.O.N. (National Organization of Non-parents) and Right-to-Life Organization if she wishes.

N.O.W. - This Women's Rights organization feels the choice of motherhood should be a free one for every woman. Members feel that women should have equal training, equal pay, and equal job opportunities. They think little girls should not be raised to play only with dolls and be "mommies". Women can be truck drivers, electricians, doctors, and governors: anything a man can be. N.O.W. members feel that no woman has to choose motherhood just to please a man.

Black Power Groups - Many black militants resent government family planning clinics in black neighborhoods. They claim the government is trying to limit the number of blacks. They feel that their power comes from large numbers and that blacks must beware of genocide. Of course, not all blacks agree. The overall birth rate among blacks is decreasing as it is among whites.

These are just two examples of attitudes in the United States. Most Americans, however, do not belong to any special organizations. But they do have different opinions about family size. How about you?

Homework: Complete one of these three statements:

1. By the time I am 45 years old, I would like to have _____ children. Here are my reasons:

2. I think big families (over 3 children) are better because:

3. I think small families are better because:

LESSON EIGHT

Unit: Production, Pollution, Population: Issues for a Changing World

Topic: Third Major Issue: Do all people agree that population growth should be slowed down? What are the attitudes of various groups and governments in the U.S.A. and around the world?

Objectives: The student will get an overview of the developing world and the variety of population policies. He will look at the National Health - Care Program of one country (Zorah's) and learn why it has not had more success (reasons of cultural tradition). He will realize that political and economic factors usually dictate the attitudes of governments towards population.

Materials: Neighborhood Ladies' Day
Homework Sheet: Arguments, Arguments

Drill: (optional)

1. State 2 reasons why the birth rate in America has come down since World War II:

   a.
   b.

2. Name one group of Americans that is generally in favor of smaller families and one group that is generally in favor of larger families:

   a.
   b.

3. Most Americans would agree that population growth is not our most serious problem. Which of these others do you feel are most important? (check three)

Drugs and Crime	Corruption in Government
Unemployment	Poor Housing
Inflation (high prices)	Segregation
Unfair Distribution of Income	Poor Police Protection

Activity I: (Teacher leads discussion)

Yesterday we looked at our own country, a nation that is growing slowly compared to most nations of the world. Today we will look at some other countries and see how they are reacting to faster and faster growth.

The teacher can put the brief chart (next page) on the board. Students may, but do not need to copy it. A guide for discussion follows.

	Africa	Latin America	Asia
Total number of countries	42	23	37
Number of governments taking steps to slow down their population growth.	6	5	14

You will see from the chart that in Africa only 6 out of 42 countries have a policy of trying to slow down their population growth. In Latin America, only 5 out of 23. In Asia only 14 countries have an interest in slowing their growth rates. Among these 14 countries, however, are the two great "giants" of the world, Mainland China (the most populated country: around 900 million) and India (the second most populated country: around 550 million).

Presently, every country is making its own decision about whether or not its population is growing too fast. At the United Nations World Population Conference in Bucharest, August, 1974, the representatives rejected any kind of international policy about population. As you can see, only a small percentage of the developing countries (about 1/4) have government programs to help slow down population growth. Later in this lesson we will see how government leaders make their decisions about population.

Activity II: Let's come back to our friend Zorah now and see what her country is doing about population growth. Tunisia is one of only six countries in Africa whose governments offer family planning services and encourage small families. The marriage age, which used to be very young, has been raised to 18 for women, 20 for men. In government clinics all over the country, women can get free advice and help in planning the number of children they want to have and when they want to have them.

Question: If this help is available without cost in Zorah's country, why is the population still growing so fast? There are many cultural reasons why women still have large numbers of children. Remember, Zorah cannot read or write. She knows nothing about germs. She is still superstitious about illnesses (charms, bloodletting and folkcures are still popular in Tunisia). She doesn't understand much about her own anatomy.

Do you like to go to a doctor or dentist? (elicit answers) Usually not. Sometimes you feel scared or embarrased. "Will he find cavities to drill?" "Will he give me a shot?" These feelings are much worse for Zorah because she has had no education at all.

Let's listen to a conversation between Zorah and two of her neighbors. Seewhat reasons you can find that keep the women from taking advantage of the free health care their government offers. (Take Neighborhood Ladies' Day from student packet to read aloud.)

Lesson Eight

Neighborhood Ladies' Day

Habiba: (a friend of Zorah's) Zorah, aren't you supposed to take Jamilla for her shots today? The clinic is only a short bus ride to your house. You better go.

Zorah: I know, but when I go to the clinic, I have to wait all morning to see the doctor. Jamilla cries and gets restless. Sometimes the nurses are rude and make me feel stupid. Besides, I'm afraid the doctor may want to examine me, too. There was no doctor in my village and I'm frightened of all those ugly instruments on the clinic shelves.

Habiba: You shouldn't be afraid. I would like to go tomorrow and talk to the family planning worker, but my husband is very old fashioned. He is a strong Muslim and likes to keep his wife at home. I still wear a veil over my face when I go out because he does not want other men to look at me. He will not let me be examined by a doctor.

Kamissa: (another neighbor) If you think your husband is old fashioned, you should talk to my mother-in-law! We live with her and she is really the boss of the household. I have a good job and don't really want more than two children, but she wants lots and lots of grandchildren. She thinks the first duty of any new wife is to have a son as quickly as possible. Most older Muslim women agree with her. They think 9 or 10 grandchildren will take good care of them in their old age. So - I guess I will have to have a big family after all.

Habiba: I can see there's a lot of educating to be done before we women take advantage of what our clinic offers. Old traditions don't die out fast!

Can you list 4 reasons why these women do not go to the government clinic even though it is free?

1.
2.
3.
4.

The reasons given in this skit are cultural reasons, not political or economic. The culture of Tunisia (traditional Muslim) and of many other countries makes the acceptance of all health care services very slow and very difficult.

Activity III: (The teacher refers again to the chart of national policies. Leads discussion on the reasons for government policies.)

The neighborhood ladies have cultural reasons for their attitudes towards family planning. When it comes to the president of the country, however, his reasons are likely to be political and economic. He will decide what he thinks will make him more popular and more powerful among his neighbors. Even if his country is growing very fast, he may decide against trying to slow down population growth because of any of the following reasons: (The teacher may point out here that more than half (60) of developing countries give no support to family planning activities. Ask whether students can suggest some reasons for this before putting following list on the board.)

Reasons for a fast-growing population

1. More people means more workers and more purchasers (economic reason).
2. More people means a bigger army to protect our country or wage war (political reason).
3. More people of our race, religion or system of government will increase our power in the world community (political reason).

The president must weigh these reasons against the demands that growing populations put on his shoulders:

Reasons against a fast-growing population

1. More people means more food, schools, hospitals, roads, houses, services of all kinds will be needed (economic reason).
2. More people will need jobs. More industry will be needed (economic reason).
3. More people may mean more poverty, more crowding, more crime, more discontent, more use of natural resources, more pollution and more problems for my government to handle. (political and economic reasons).

Ditto

Homework: Arguments, Arguments

Draw a cartoon of one of these three situations. You may make one picture, or a series like a comic strip. Have the characters in your cartoon saying something to show their argument.

or

Write a dialogue of about 10 lines to read to the class. Choose one situation from this list.

1. Zorah takes Jamilla to the clinic for her shots. Two nurses and finally the doctor talk to her. (Show that the nurses are rude and Zorah is afraid of the doctor.)

2. Habiba talks to her husband, trying to convince him that she should not wear a veil any longer and that she should be allowed to go to the clinic. An argument follows.

3. The president of a poor developing country tells his American population advisor why he does not want to slow down population growth. The American advisor tries to change his mind.

LESSON NINE

Unit: Production, Pollution, Population: Issues for a Changing World

Topic: The last two lessons (9 and 10) are reserved for review of the unit and any kind of final test the teacher deems appropriate. This lesson should be a review of the three major issues: Food Supply, Production and Pollution, and Population Policies.

Objectives: The student will have a chance to review the unit and see the relationships among its parts.

Drill: (optional)

Give three cultural reasons why women do not always use government health care clinics even if they are free:

1.
2.
3.

Give two reasons for and two reasons against a president's trying to slow down his country's population growth. Note whether the reasons are political or economic if you can.

1.
2.
3.
4.

Activity I: Presentation of cartoons and dialogues (Homework Assignment)

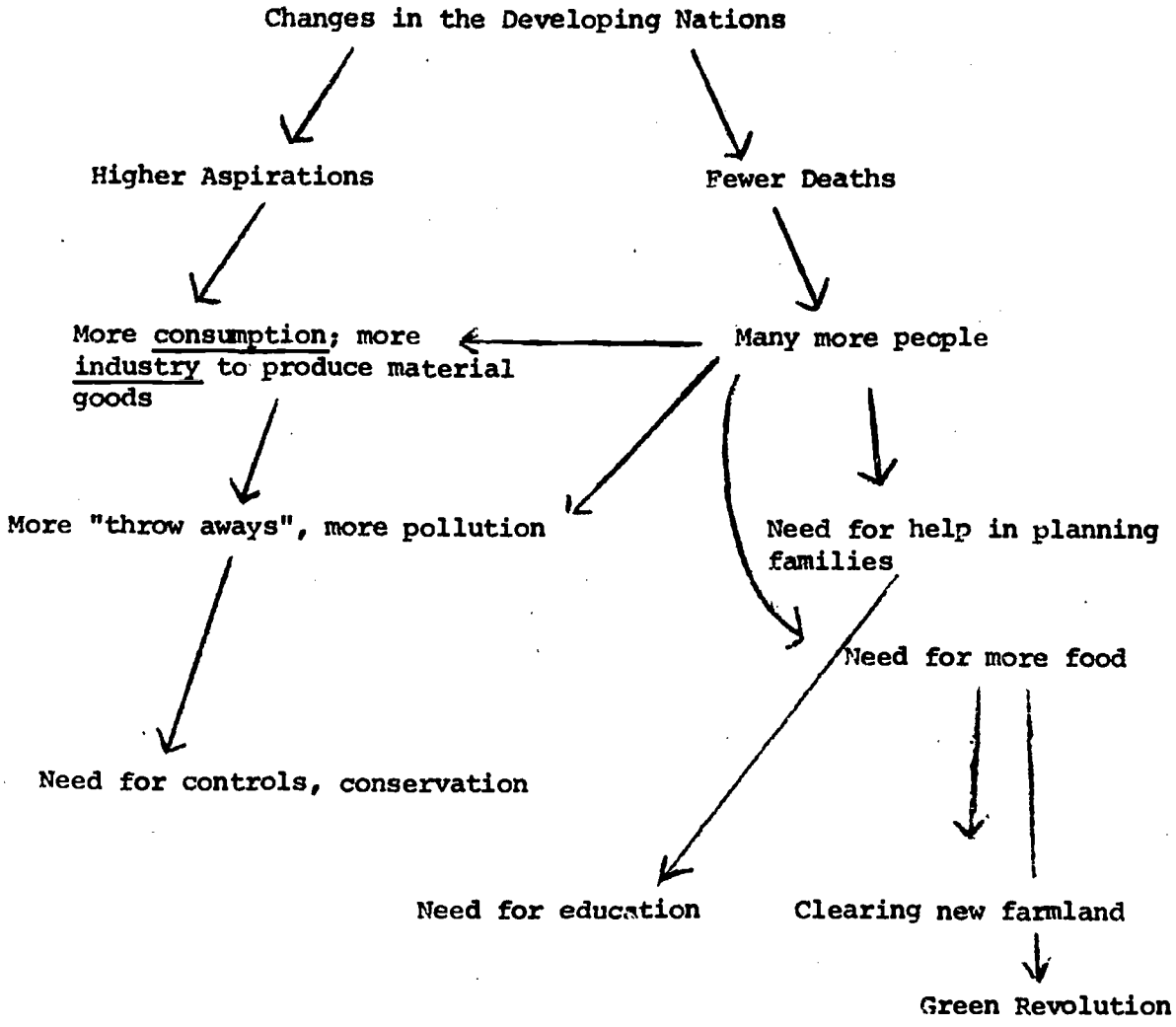
These should be fun to hear if the students feel free enough to enjoy dramatics. According to the time available for the unit, the teacher may spend more than 1/3 of the period on the dialogues. If she is rushed, she will have to move along to a review of the unit.

Activity II: Unit review.

This may be done in any way the teacher feels most suitable for her class. The following are suggestions.

1. Go back to the Introduction in Lesson One and re-read it, asking what were the 3 big questions at the beginning of this unit? Why have we not been able to answer them completely?

2. Build on the board and have students copy this sample diagram which shows the inter-relationships of parts of the unit. The whole is complex; parts depend on each other. Stress the unifying theme "You can never do only one thing." Begin with top line. Arrows can be translated "lead to." (diagram on next page)



3. Make a list with students of some of the people we met in this unit. Review where they might fit in on the diagram and what they represented.

Zorah (change - aspirations - old ways to new)
Zorah's father (poor farmer - early death)
Zorah's aunt (old ways - many children - fewer aspirations)
Students' grandparents (change - high aspirations - old ways to new)
Students' families (consumption, pollution)
Egyptian farmer of Nile Valley (difficulties of irrigation projects for more food)
Fisherman of Nile-Mediterranean (difficulties with projects for more food)
Farmer who would like to clear tropical rain forest for farming (difficulties of clearing jungle)
Indian farmer too poor to buy fertilizer (problem of Green Revolution)
Wealthy Indian Farmer who triples his crop (success of crop yield, Green Revolution)

Mr. Millionaire and his 3 cars, yacht and private plane (affluence and pollution)
N.O.W. member (attitudes towards family planning)
Black Militant (attitudes towards family planning)
President of fast-growing country (decisions about population)
Habiba's husband (traditional Muslim view of women)
Kamissa's mother-in-law (traditional desire for large family)

4. As homework or as part of classwork, the teacher may have students review their student package work sheets, introductions, summaries.

5. Teachers who have not shown the filmstrip, "Must the World Go Hungry", may want to use it here. Text and questions are in lesson four.

6. The teacher may use the homework from lesson seven (student's personal opinion on family size) as the basis for a discussion, poll or picto-graph of class attitudes. We hope she will make clear the values of large families as well as small.

Homework: Review student packet and class notes for unit test.

LESSON TEN

Unit: Production, Pollution, Population: Issues for a Changing World

Topic: Unit Test

Objectives: Hopefully this test will review the major issues and how they inter-relate. It will test recall of some facts. It will require some relating of concepts to specifics and some exercise of the imagination.

Note to the teacher: There maybe more activities here than most teachers will want to use. The teacher should feel free to select or substitute her own questions.

I. Objective Questions (Answer in one or a few words)

1. (South America) is the continent with the most rapid population growth.
2. Most people live in _____ (developed; underdeveloped) countries.
3. The continent with the largest number of births and deaths per 1000 is (Africa).
4. Two methods of opening up new farmland are (irrigation) and (clearing forests).
5. Areas in the U.S.A. growing in population are the _____ (cities; suburbs; farmlands).
6. The continent with the slowest population growth is (Europe).
7. A luxury item is (something we can easily do without).
8. The consumption of luxury items has _____ (increased; decreased) in the last ten years.
9. Probably only one of our natural resources will last more than 100 years. It is _____ (oil, coal, gold, natural gas).
10. Industries are reluctant to cut down on their pollution because (it costs money, lowers profits).
11. At least half of the developing nations of the world _____ (support; do not support) government family planning programs.
12. Kamissa's mother-in-law _____ (did; did not) want Kamissa to have only two children.

II. Short answer questions - One of the ideas in the unit is how one thing leads to another. "You can never do only one thing." Explain one of the problems that can result from each of the following actions:

1. Lowering childhood deaths
2. Irrigating with big dams
3. Cutting down forests
4. Introducing "miracle" seeds
5. Producing air conditioners, cars and can openers
6. Establishing government health clinics

III. Role playing. For each person listed below, make up a line showing something they taught us in the unit. The statement should begin either I showed... or I believe...

1. Aunt in Zorah's village
2. poor farmer in Nile valley
3. man who works in steel factory
4. Zorah's father
5. millionaire with 3 cars, airplane and yacht
6. member of N.O.W.
7. rich farmer in India who is trying miracle wheat
8. Habiba's old fashioned husband
9. a black militant
10. the president of a fast-growing country

IV. Essay - Choose 3 of these quotations and write a brief paragraph explaining what it means to you.

1. "Is it only the mouth and belly which are injured by hunger and thirst? Man's minds are also injured by them." - quoted in the filmstrip Must the World go Hungry, from an old Chinese philosopher

2. "Big families are the best because..." or "Small families are the best because..."

3. "Most Americans agree that population growth is not our most serious problem."

4. "To attempt to deal with population without at some time dealing with development would be an insult. But to attempt to deal with development without at the same time dealing with population would be a deceit." Statement made at the United Nations World Population Conference, Bucharest, August, 1974