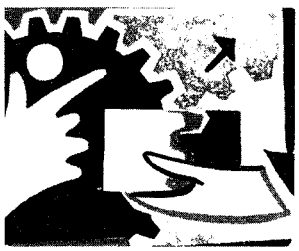
Why teach about interdependence?

At one time, students were taught to see the world as a collection of nation states whose concerns only occasionally touched upon or collided with concerns of other nation states. But for today's young people, an understanding of interdependence is essential.

Interdependence involves seeing the world as a system, understanding the web of relationships in that system, appreciating the delicate balance between the parts of the web and realising that changes in any one part of the system will have effects on the whole.

For example, environmental pollution spreads without regard to national borders, affecting food chains in neighbouring countries, and thus the health and livelihoods of their citizens. A 'local' conflict in an oil-producing country can affect oil supplies around the world, and initiate changes in energy policies of countries thousands of miles away. All parts of the world are linked in ways which are sometimes obvious, sometimes subtle.



Not only places, but also issues are interrelated. For example, poverty may be due to a number of factors: lack of education, poor medical care, environmental degradation and discrimination, to name but a few possibilities. Attempting to eradicate poverty by providing only education and job training may yield at best partial results. Lasting solutions come from understanding the interdependence of all the contributing factors.

Interdependence is not a new phenomenon, unique to the latter half of the twentieth century. Whenever people have come into contact with each other – through exploration, colonisation, migration or trade – links have been created. Ideas and values have been exchanged, cultural elements have been borrowed, products and technology incorporated into ways of life.

But interdependence has become a critical issue at this point in history because:

- dramatic changes in transportation and communication technologies have occurred;
- this has caused increased movement of peoples around the world, increased cultural diversity, and a complex system of global trade;
- there has been a proliferation of multinational corporations and international organisations, which have forged and reinforced global connections.

Interdependence is not only a characteristic of global systems. It can also be seen at national and local levels. Indeed, younger students can be introduced to this concept by examining interdependence in family roles, within a school, between workers in a business, in the community and between regions of a nation.

But interdependence is more than an area of content in Education for Development. It is also basic to the learning process. Activities in this chapter, and throughout the manual, are structured cooperatively. They require students to function in an interdependent way in order to complete specific tasks.

Some key concepts

SYSTEMS

Systems refer to the arrangement of parts into a unified whole. The loss or malfunctioning of one part has an effect on all of the others, and may even cause the system to cease functioning altogether. There are simple mechanical systems, such as a bicycle, and more intricate human systems, such as a small business. There are systems which encompass human and non-human elements, such as a regional ecosystem. And there are complex global systems, such as global trade networks, which are made of many smaller systems.

SYMMETRICAL INTERDEPENDENCE

When all parts of a system are functioning cooperatively, that is, working together for a common mutually beneficial objective, the system is in a state of symmetrical interdependence.

ASYMMETRICAL INTERDEPENDENCE

This term refers to the links in the world's systems that are *not* mutually beneficial. Such imbalances can often be seen in the relationships between industrialised and developing countries. For example, developing countries are sometimes encouraged to grow cash crops for export. When market prices for those crops fall, industrialised countries benefit from the availability of cheap products, while the nations which produce them find they have less income, less land available to grow food, and less money available for purchasing the food they require. Such a relationship puts the developing countries at a severe disadvantage.

Teaching about interdependence: Aims and objectives

Knowledge	*Skills*	*Attitudes*
• Knowledge of the systems which affect the learners' daily lives. • Understanding the world as a system in which all elements – people, events, trends, places – are interconnected. • Awareness that issues are also inter-related. • Knowing that some world systems operate in ways that favour certain groups or countries, while placing others at a disadvantage. • Understanding the global implications of local decisions and actions.	• Ability to cooperate and work effectively in groups to achieve a common goal. • Being able to evaluate the effectiveness of cooperative versus competitive approaches to different types of tasks. • Capacity to analyse events or trends to see both their many layers of causes, as well as their many potential impacts.	• Respect for the needs and contributions of all members of a system, whether it is in the classroom, the local or global community, or the ecosystem. • Positive valuing of the ways in which individuals can support and benefit the whole, and vice versa. • Willingness to cooperate with others in order to solve problems for the benefit of all.

Activity 1

The story of the two donkeys

OBJECTIVES

To help students examine cooperation, a basic skill for living in an interdependent world, as an alternative to competition.

MATERIALS

A copy of the **Two donkeys** cartoon (on page 31) for each pair of students; the six sections of the cartoon should be cut out before starting the activity. A large sheet of paper and a glue stick for each pair of students.

Age level 1: 7–11 years

PROCEDURE

Step 1

The students form pairs; each pair is given the six sections of the **Two donkeys** cartoon. They are to place the pieces in order so that they tell a complete story. When this is done, they glue them down on a sheet of paper.

Step 2

Each pair then joins with another pair and tells the story of the two donkeys as they see it.

Step 3

As a class, the students discuss the following questions:

- What was the donkeys' problem at the beginning of the story?
- What did they try to do about their problem at first? Did this work? Why not?
- What did they do to solve their problem?
- Did both donkeys get what they wanted?
- Have you ever solved a problem with another person by cooperating? Tell the class about it.

VARIATIONS

1 Teachers give students only the first four pieces of the cartoon and have them devise their own ending.

2 Students write a story to describe what is happening in the cartoon, or act it out.

FOLLOW-UP

1 Students create their own cartoons about conflicts, real or hypothetical, which can be solved through cooperation. These can be compiled into a class book.

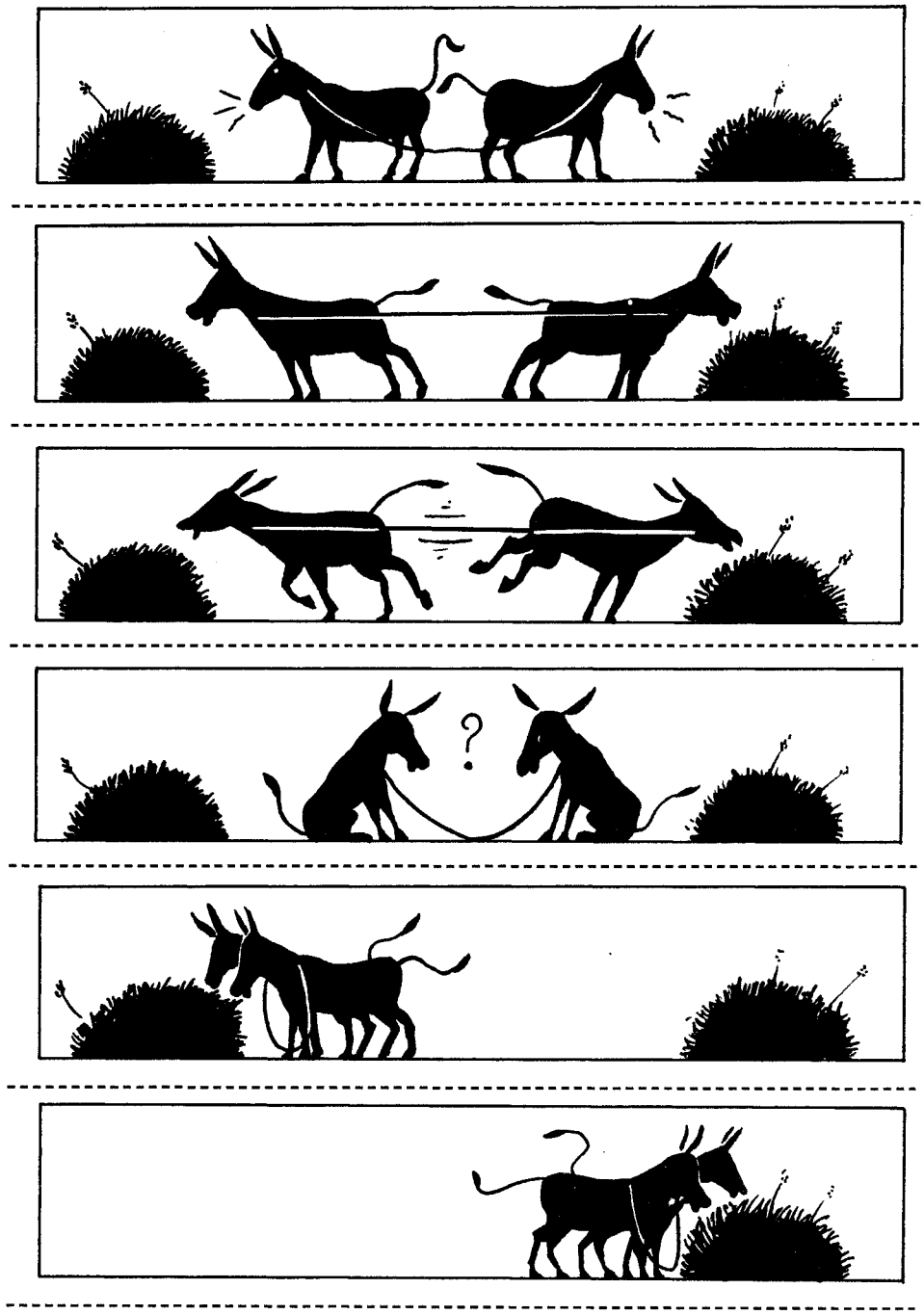
2 As actual conflicts arise in the classroom, school or community, students brainstorm cooperative solutions, in which both parties have their needs met.

IN THE CURRICULUM

The activity involves analysing images, sequencing, and problem-solving. It can be used as part of an English or drama lesson.

Two donkeys

worksheet



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Activity 2

Systems that work

OBJECTIVES

To introduce the concept of interdependence by examining the parts which must work together to make simple mechanical systems function.

Age level 1: 7–11 years

MATERIALS

Drawing paper and pencils for each pair of students.

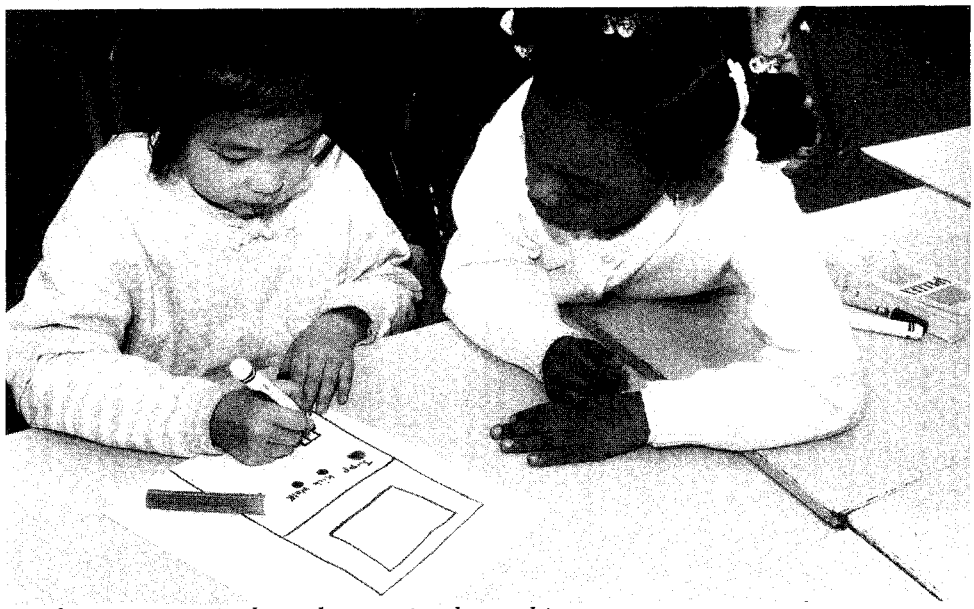
PROCEDURE

Step 1

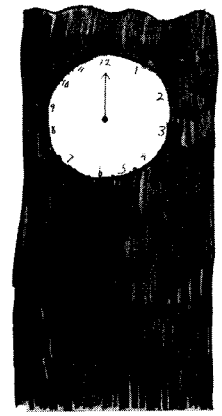
Working in pairs, students think of a familiar machine which is made up of several parts. Some examples might be: a bicycle, a car, an electric fan, a cart, a telephone, a lamp, a tin opener, a clock or a computer.

Step 2

After deciding on a machine, the pairs draw it on their paper, leaving out of the picture one of the machine's parts.



Working cooperatively to draw a simple machine



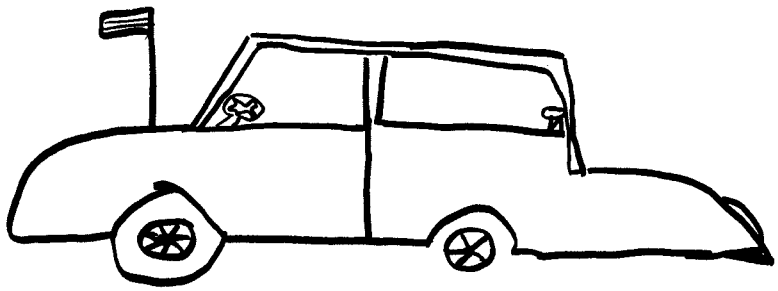
Step 3

When each pair has finished its drawing, it joins with another pair. They exchange pictures, and guess what the machine is, what part is missing, and what the effect of the missing part would be on the whole machine.

Step 4

The group then discusses the following questions:

- What examples of machines did you think of?
- How did having one part missing affect your machine? Could it still function in some way? Or was it totally unable to function?



VARIATIONS

1 In groups of four to six, students decide on a machine that they can mime for the rest of the class, who then try to guess what they are. Each student should have a specific part to play in the working of the machine.

They can also act out a situation in which one part of the machine stops functioning, and all the other parts are affected.

2 As a group, the students brainstorm as many parts of the human body as they can think of. They then describe what would happen to the body if one of these parts was missing.

FOLLOW-UP

The class brainstorms a list of situations where human groups or individuals are dependent upon one another, and tries to highlight the specific functions of each group or individual that enable the situation to work smoothly. Are the students themselves involved in any of these situations as part of a group, or as an individual?

IN THE CURRICULUM

The activity requires analysing images, anticipating consequences and cooperative decision-making. It can be integrated into a science, art, or drama lesson.

Activity 3

Who helps?

Age level 1: 7–11 years

OBJECTIVES

To encourage students to see the interdependencies which exist between groups or individuals in a situation in which they are involved.

MATERIALS

Index cards, A4 paper and pencils, large sugar paper (optional).

PROCEDURE

Step 1

The students brainstorm all the different roles which exist in their school. These are grouped into types of workers: head teacher or principal, teachers, cleaners, kitchen workers, playground supervisors, special subject teachers, nurse, etc. (Roles will vary with each school.) Students should include themselves as a group. The name of each role is written on a card.

Step 2

The students form pairs. Each pair is given a card with one of the roles named in the brainstorm. (More than one pair may receive the same role, depending on the numbers of students in the group.)

Pairs then work together to list all the ways that the person or persons whose role is named on their card helps other members of the school community. For example:

The playground supervisors:

- help the teachers by watching the students during lunch;
- help the students by planning games for them;
- help the cleaners by keeping the playground free from litter; etc.

The nurse:

- helps the students by looking after them if they get hurt;
- helps the teachers by calling a sick child's parents; etc.

The students:

- help the kitchen staff by bringing their plates back to the kitchen;
- help the teacher by completing work that can be put on display;
- help the cleaners by picking papers up off the floor; etc.

Step 3

Still working in pairs, the students devise one or more brief role plays based on their list, one playing the role of the helper, and the other taking the role of the person being helped.

Pairs then take turns performing their role plays for the rest of the group, without revealing the identity of the helper. The rest of the class tries to guess who the helper is.

Step 4

Following the role plays, the group discusses the following questions:

- What did you learn about relationships between different groups in the school?
- Are there certain groups or people who give help more often than they receive help? Who are they and why?
- What roles do students play in the school community?
- Is there anything about the roles of students that you would like to be different? What is it, and why?

VARIATIONS

1 Students follow the same procedure to explore interdependence in another group or situation, such as their family, their youth group, a local business or in their village, town or city.

2 Students make a mural to depict the relationships between members of these interdependent groups.

FOLLOW-UP

Students interview various workers in the school to learn more about how they depend on others, and how others depend on them.

IN THE CURRICULUM

The skills of cooperation, seeing relationships, and anticipating consequences are involved. The activity can be used in a humanities class on roles in the community.

Activity 4

The web of life

OBJECTIVES

To demonstrate interdependence in the ecosystem, and to show how changes in one part of the ecosystem affect other forms of life.

Age level 1: 7–11 years

MATERIALS

Several balls of wool, scissors; one of the ***Web of Life*** cards (pages 39 and 40) for each student. (Twenty-four cards are included; in a group of more than twenty-four students, extra cards for green plants and insects may be made.)

PROCEDURE

Step 1

The teacher explains to the group that it is going to be learning about food chains by taking on the role of one part of the chain. She then distributes one ***Web of Life*** card to each student. They read these over, and ask questions if they don't understand their card. Students who have a blank space on their card can write in the name of one local mammal, bird, plant, or insect which fits the description.

Step 2

The group clears a space in the centre of the room. A student is chosen to read his card aloud. The others listen and decide if they are linked to the first student – either because they consume the living thing described or are consumed by it. They demonstrate this link by giving one end of a length of wool (about one or two metres long) to the first student, and tying the other end around their waists.

Step 3

A second student is asked to read her card aloud, and the same procedure as in Step 2 is followed. The activity continues until all the students in the group have joined in the web; some students will have more than one piece of wool attached to them.

Step 4

The teacher then explains a scenario in which there is an environmental problem. For example:

> **'A nearby factory is polluting the air. Because of this pollution, acid rain is falling on the land, causing the soil to be too acidic, and killing off green plants.'**

All students who are standing in the web and are affected by this situation (in this case, the green plants) must then sit down, to indicate that they can no longer survive. Then all the students who are directly dependent on the green plants, as indicated by the connecting piece of wool, must also sit down, demonstrating the secondary effect of acid rain. Each student who is connected to someone who is sitting down must also sit, until the chain of effects is completed.

Other environmental scenarios which might be used include:

> **'A farmer who is concerned about insects eating her crops uses a strong insecticide. The insecticide kills many of the other insects living in the area.'**

> **'A logging company decides to clear an area of all of its trees so that it can sell the wood and make a lot of money.'**

Step 5

As a group, the students discuss the following questions:

- What did the completed web tell you about the ecosystem?
- Were there any other living things that should be included in the web?
- What parts of the web were affected by environmental problems? Were there any parts that were not affected?
- What other kinds of environmental problems do you know about? What parts of the ecosystem do they affect?
- Is there anything you can do about these environmental problems?

VARIATIONS

1 A similar activity could be carried out using another ecosystem as a model, for example a lake or river. Students determine what the different members of the ecosystem might be, and make their own set of cards.

2 Students may map the web of relationships in the ecosystem on paper, drawing arrows between members that are dependent on each other.

FOLLOW-UP

1 Students visit an outdoor education centre or natural area to observe food chains first-hand.

2 They look into setting up and maintaining a wildlife area or garden near their school.

3 They investigate situations in which environmental damage is being done in their own community, and consider possible actions to take in response – letter-writing, petitioning, boycotting certain products, etc.

IN THE CURRICULUM

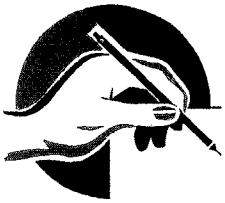
The activity involves seeing relationships and understanding consequences. It could be integrated into a science class.

Web of life cards (1)

For a class of 24, make one copy of this sheet

worksheet

I am a human being. I eat meat that comes from large mammals and birds. I also eat grains, fruit, and vegetables.	I am a bird, a _____. I eat grains, seeds, and insects. Sometimes human beings use me for food.
I am a bird, a _____. I eat grains, seeds, and insects. Sometimes small mammals use me for food.	I am a bird, a _____. I eat grains, seeds, and insects. Sometimes small mammals use me for food.
I am a large mammal, a _____. I eat grasses and grains. Sometimes human beings use me for food.	I am a large mammal, a _____. I eat smaller mammals, and some fruits and grains. When I die, bacteria and moulds help my body decay and turn into soil.
I am a small mammal, a _____. I eat grains, seeds, fruits, insects and birds. Larger mammals eat me, and bacteria and moulds help my body decay and turn into soil when I die.	I am a small mammal, a _____. I eat grains, seeds, fruits, insects and birds. Larger mammals eat me, and bacteria and moulds help my body decay and turn into soil when I die.



worksheet

Web of life cards (2)

For a class of 24, make two copies of this sheet

I am a tree, a _____. I need sun, healthy soil, and clean water to grow. Insects, birds, and small mammals make their home in me, and eat my seeds and fruits.	I am an earthworm. I eat decaying plants, and help turn them into healthy soil.
I am a bacteria. I feed on decaying plants and animals, and help turn them into healthy soil.	I am a mould. I feed on decaying plants and animals, and help turn them into healthy soil.
I am an insect, a _____. I eat plants. Birds and some small mammals use me for food.	I am an insect, a _____. I eat plants. Birds and some small mammals use me for food.
I am a green plant, a _____. I need sun, healthy soil, and clean water to grow. Birds, small mammals, and some large mammals eat me (or my grains, seeds, or fruits).	I am a green plant, a _____. I need sun, healthy soil, and clean water to grow. Birds, small mammals, and some large mammals eat me (or my grains, seeds, or fruits).

Activity 5

Where does it come from?

OBJECTIVES

To heighten students' awareness of the links between their community and the wider world.

MATERIALS

A large world map, push pins, string or wool.

Age level 1: 7–11 years

PROCEDURE

Step 1

Ask students to keep a diary of the foods they eat at home during the course of a day, and note down the country each one comes from. Explain that most packaged foods list the country of origin on the label and that they must read carefully to find the country name.

Step 2

In class, the students then locate on the map the countries which produce foods they commonly eat. They place pins on those countries, or use string to show a link between the exporting country and the students' country.

Step 3

The group then discusses the following questions:

- Is most of your food produced in your own country, or does most of it come from other countries?
- Were you surprised to learn where your food comes from?
- Are there any countries or parts of the world from which you do not receive food? Why might this be?
- Pick one of the countries on the map that exports food to your country. Can you imagine anything that might happen in that country that would make it difficult for you to continue buying that food at home?

Where does it come from?

VARIATION

The activity can be carried out by asking the students to examine and plot on separate maps the following:

- sources of their clothing;
- sources of their toys;
- origins of films, music, videos, or other forms of entertainment and media.

They can then be asked to compare the different maps they have created. What sorts of patterns emerge?

FOLLOW-UP

1 Students research an item which has more than one country of origin, such as an automobile or a piece of clothing. What countries provided raw materials, parts, or labour to produce this item? Why might this be?

2 Students visit local supermarkets or greengrocers to enquire about why they purchase foods from particular countries.

IN THE CURRICULUM

The activity involves reading comprehension and map skills, and would be appropriate for a history or geography class. In mathematics, graphs could be prepared to show the differing amounts of exports from various parts of the world.

Activity 6

Global news/Local news

OBJECTIVES

To examine the ways that far-away places, events, and trends affect one's local community.

MATERIALS

Current local newspapers; a photocopy of a world map, mounted on a large sheet of sugar paper, and a glue stick, for each group of four.

Age level 2: 12–15 years

PROCEDURE

Step 1

Students form groups of four. They look through several local newspapers, and cut out any articles which indicate that another part of the world is having an impact on the local community, or that their country is affecting another. Some examples might include articles about:

- economic or political problems which are causing migration between their country and another;
- pollution in another country which is affecting their country, or vice versa;
- an exchange of music, food, or fashion between their country and another;
- a reduction in tourism to or from their country due to a conflict in the host country;
- a disruption in the import/export of food or raw materials between their country and another because of trade issues, drought, or political conflicts;
- military action between their country and another;
- trade competition between their country and another country.

Step 2

Students paste these articles onto the large sugar paper, surrounding the map of the world. They draw lines from each individual article to the country it refers to.

Step 3

Students classify the articles under headings they devise, to indicate the types of links between their community and other parts of the world. The headings may include trade, military contact, cultural exchange, migration, tourism, the environment, etc.

Step 4

When the groups have completed these steps, they discuss the following questions:

- What parts of the world did you find the most links to?
- Were there any parts of the world to which you found few or no links? Why might this be so?
- What types of links were most common? Why?

VARIATION

Students compare the amount of column space given to news which has a purely local focus, news which deals with international events, and news which has both local and global impacts. Is it possible to make these types of firm distinctions when reading the newspaper?

FOLLOW-UP

Students could visit the office of a local newspaper to interview editors about how decisions are made as to how much local news and how much international news will be covered. They may also want to suggest types of global issues they feel should be addressed in the newspaper.

IN THE CURRICULUM

The activity involves reading comprehension, mapping and classification. It can be used in an English or geography class.

Activity 7

The housing project

OBJECTIVES

To explore interdependence in a local community by considering the impact of a specific change on its various members.

MATERIALS

A copy of the **Housing project description** (see page 47) for each pair of students; a set of **Housing project role cards** (see pages 48 and 49).

Age level 2: 12–15 years

PROCEDURE

Step 1

Students form pairs; each pair is given a copy of the **Housing project description** and *one* of the **Housing project role cards**. They read these over together.

Step 2

The pairs then take approximately ten minutes to list all the benefits and problems they can think of relating to the proposed new housing project. They must do this from the point of view of a person in their role only. They then decide whether they would favour or oppose this project.

Step 3

The teacher tells the class that they are now taking part in a city council meeting. Each pair in turn presents to the group its position on the proposed new housing project. If they oppose it, they must explain their reasons. If they favour it, they must list what actions, if any, should be taken in and around the neighbourhood to ensure that potential problems are addressed.

Step 4

The students vote on whether or not to carry out the project.

Step 5

They then discuss the following questions:

- Are there any other groups in the community whose opinions should have been consulted?
- How was your opinion on the project affected by the opinions of the other groups?
- Would concerns raised by any one group have an effect on other groups? For example, would inadequate transportation between Riverbank and the rest of New City affect factory owners who might provide jobs for residents? Would inadequate sanitation services cause illnesses, leading to increased pressure on workers at the health clinic? Would lack of recreation facilities lead to an increase in crime?
- Are there some groups whose opinions deserve to be given more weight in this planning decision than others?
- In real planning decisions, do you think the opinions of all groups are given equal weight? Are there groups whose opinions are seldom or never heard?

VARIATIONS

1 Older students can role play a discussion between someone opposed to and someone in favour of the housing project.

2 Students look for newspaper accounts of local development projects being considered – the building of a factory or road, laying a new pipeline, creating a playground, etc. They collect newspaper articles which describe the reactions of various segments of the community.

FOLLOW-UP

The students invite a person who is responsible for making planning decisions in their community to visit the class and talk about the points of view taken into consideration prior to any new development project.

IN THE CURRICULUM

The activity involves understanding different points of view, seeing relationships, anticipating consequences, and decision-making. It could be incorporated into a humanities or drama class.

Housing project description

worksheet

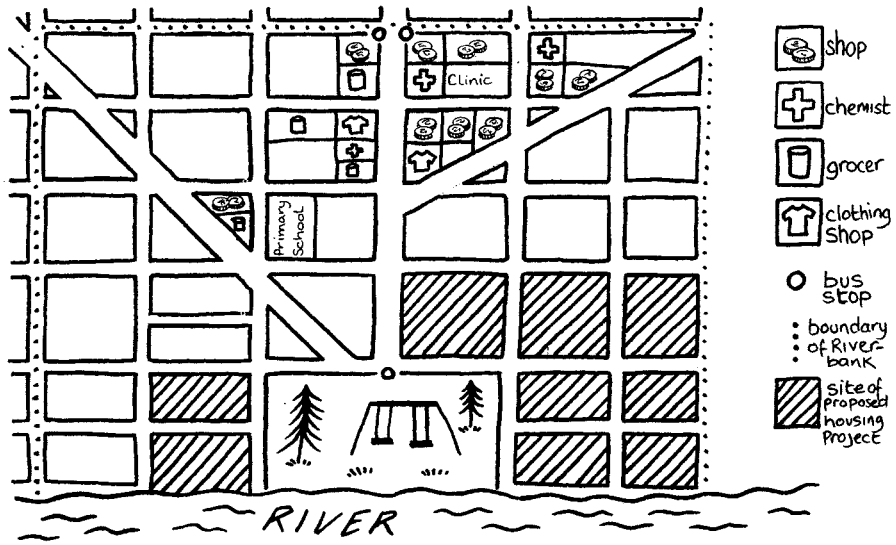
A housing project is being considered for the Riverbank neighbourhood of New City. Five thousand people live in Riverbank. It is a poor part of the city and few people have jobs. Those who have jobs work in shops and factories in other parts of New City. Few people have cars. There is only one bus line from Riverbank into the centre of New City.

Riverbank has several streets with a few grocers, clothing shops, and chemists. There is one primary school, one health clinic, and one small park.

Most of the houses in Riverbank have three floors. They were once owned by single families. Now they have been turned into flats, with three to five families in each house. The people who live there complain that the houses need repairs, and that there is not enough heat.

The new housing project would replace the old houses in Riverbank with high-rise blocks that are safer and healthier places to live.

When the project is completed, there will be housing for approximately 12,000 people in Riverbank. Unemployed and homeless people in other parts of New City will be able to move there. So will many of the 3,000 people from a nearby country who have recently come to New City to find jobs. They do not speak the local language and have had difficulties finding places to live.

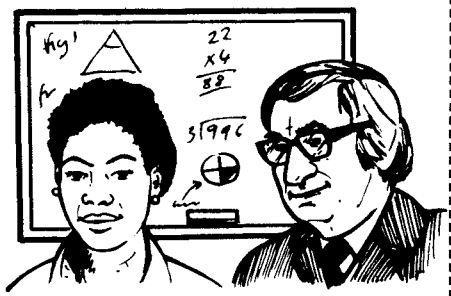


A map of Riverbank

Housing project role cards (1)

worksheet

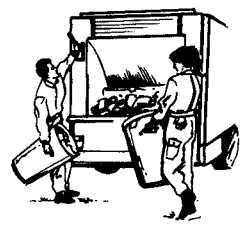
You are teachers in the Riverbank school. Your classes are very crowded, much more so than in schools in the rest of New City. You have read about the plan for the new housing project. Can you think of reasons why it is a good idea? Can you think of any problems it will cause?



You have recently moved to New City from another country. You are learning to speak the language, and are looking for a job and a place to live. You have read about the plan for the new housing project. Can you think of reasons why it is a good idea? Can you think of any problems it will cause?

You are the owners of small shops in Riverbank. You barely make enough money to keep your business going. You are worried that there is more crime in Riverbank. You have read about the plan for the new housing project. Can you think of reasons why it is a good idea? Can you think of any problems it will cause?

You work at removing rubbish in New City. Your department does not have enough workers. People in neighbourhoods like Riverbank complain that rubbish is not removed frequently enough. You have read about the plan for the new housing project. Can you think of reasons why it is a good idea? Can you think of any problems it will cause?

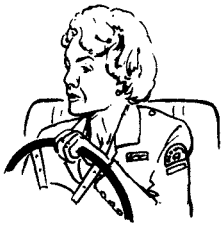


Housing project role cards (2)

worksheet

You work for the only health clinic in Riverbank. It is difficult for your clinic to take care of all 5,000 people in Riverbank. You have read about the plan for the new housing project. Can you think of reasons why it is a good idea? Can you think of any problems it will cause?

You work for the New City bus company. You are a driver on the only bus line that goes to Riverbank. The bus is always very crowded because people from Riverbank go to other parts of New City to work. You have read about the plan for the new housing project. Can you think of reasons why it is a good idea? Can you think of any problems it will cause?



You are the owners of a large clothing factory in New City. You want to build a bigger factory. You will need more workers, and more people to buy the clothes you make. You have read about the plan for the new housing project. Can you think of reasons why it is a good idea? Can you think of any problems it will cause?

You are young people who live in the Riverbank neighbourhood. You go to the local school. The only place you have to play is in a small park. There is rubbish and broken glass everywhere, and some of the equipment is broken. You have read about the plan for the new housing project. Can you think of reasons why it is a good idea? Can you think of any problems it will cause?

Activity 8

Breaking the cycle

OBJECTIVES

To explore the interdependence of several different factors in creating poverty; to encourage students to consider ways in which the cycle of poverty could be broken.

Age level 2: 12–15 years

MATERIALS

For each group of four, a large sheet of paper, glue, felt-tip pens, and a set of the **Breaking the cycle** cards (on page 52), cut out individually.

PROCEDURE

Step 1

The students form groups of four. Together they read their set of **Breaking the cycle** cards. Then they arrange them on a large sheet of paper in a circle. The card headed 'Poverty' should be at the top of the circle, and all the others should follow it in a clockwise order. The arrangement should show how each condition is created or caused by the one which precedes it.

When the group has agreed on their arrangement, it glues the cards onto the paper, and draws arrows from the 'Poverty' card to the next step in the cycle, and so on until it returns to the 'Poverty' card.

Step 2

In their small groups, the students discuss what steps would have to be taken to break the cycle of poverty. Possible steps might include: creating a programme that provides a basic level of food for all students living in poverty; creating free health care services for the poor; providing more funding for education in low-income areas; setting up adult education and job training programmes.

Step 3

Once students have decided on a way in which they could intervene, they write what this action would be on the large paper next to the step in the poverty cycle to which it corresponds. From that point in the cycle, they write a new sequence of steps, showing how the action taken could affect the poverty cycle.

Step 4

When all groups have completed their work, they exhibit their papers around the room. Together they discuss the following questions:

- What are some of the factors which contribute to poverty? Are there other factors which were not included on these cards?
- Why is it that poverty often continues as a cycle?
- What steps did your group propose to break the cycle?
- Would one intervention be sufficient to break the cycle, or would a number of different types of intervention be necessary?
- Which of the proposals would actually be easiest to carry out?
- What would be required to carry out these proposals?
- Do you know of any similar programmes being carried out in your country or in other countries?

The teacher should ensure that students understand that the cycle of poverty exists not only in developing countries, but in industrialised countries as well.

VARIATION

Students dramatise or write stories about the steps in the cycle, and the effect of breaking the cycle.

FOLLOW-UP

Students collect newspaper articles that show examples of how the cycle of poverty is being broken in countries around the world.

IN THE CURRICULUM

The activity requires young people to use skills such as cooperation, sequencing and anticipating consequences. It would be appropriate for a humanities class.

worksheet

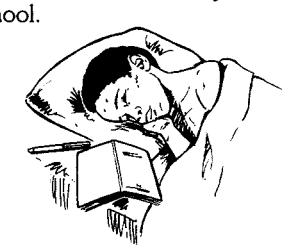
Breaking the cycle cards

POVERTY

An estimated 25 per cent of the world's children live in poverty.

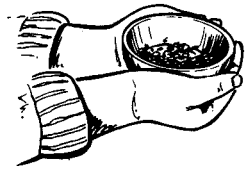
SCHOOL

Children who are often ill may find it harder to learn, and may miss a lot of school.



HUNGER

Children who live in poverty often don't get enough food to eat, or don't eat enough nutritious foods.



WORK SKILLS

Children who have had difficulties in school, missed a lot of school, or dropped out of school may not learn skills that they will need in jobs – reading, writing, or counting.

MALNUTRITION

Children who do not get enough food to eat can, over time, become malnourished, and fail to grow and develop.

UNEMPLOYMENT

When children grow older, they look for work. If they have not learned basic skills in school, they may have trouble finding a job or finding a job that pays them enough.

HEALTH

Children who are malnourished may become ill more often because their bodies are not strong enough to fight off infections.

NOT ENOUGH INCOME

People who have no work, or too little work, cannot earn enough to pay for their basic needs – food, clothing, shelter. Their children are born into a situation of poverty.

Activity 9

The chain game

OBJECTIVES

To help students understand interdependence in trade between countries which have different resources; to allow them to experience the injustice that results from unequal distribution of resources.

Age level 2: 12–15 years

MATERIALS

Newspapers, coloured construction paper (or coloured newspaper supplements), scissors, glue, staplers, pencils, rulers, distributed among the groups according to the plan described below. (Staplers are held back by the teacher until the last step in the Procedure, described below.)

PROCEDURE

Step 1

The students are divided into five groups, with approximately five students in each. Every group is given a box containing materials for the simulation as follows:

Group 1 – One sheet of newspaper, one sheet of coloured paper, five pairs of scissors, five glue sticks, five pencils, five rulers.

Group 2 – Four sheets of newspaper, one sheet of coloured paper, three pairs of scissors, three glue sticks, three pencils.

Group 3 – Six sheets of newspaper, two pairs of scissors, two glue sticks, two rulers.

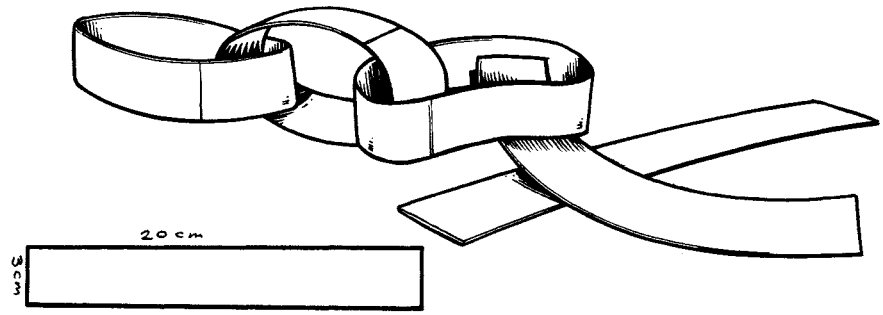
Group 4 – Ten sheets of newspaper, one ruler, one pencil.

Group 5 – Fifteen sheets of newspaper, eight sheets of coloured paper.

The groups are told that they each represent a different country. Their task is to make a product, in this case paper chains of five links each, which can be sold on the world market. They will earn five units of currency for each chain. These are sold to the teacher, who represents the world market for these chains.

Each link in the chain must be made from a strip of newspaper exactly 20 cm long and 3 cm wide. The links are made by overlapping exactly 2 cm

on each end and gluing them together. The teacher should make clear to the students that links which do not meet the world market standard – which are too long, short, wide, thin, or irregularly cut – will not be accepted. As the chains are sold, the teacher keeps a record of how much each group earns on the chalkboard.



Paper chain dimensions

The teacher should not explicitly point out that the groups are receiving unequal resources. If students argue that it is unfair, the teacher can reply that this is simply the way that materials have been divided up for this game; however, the groups are free to negotiate trading of resources. They may also purchase resources with their earnings, but must notify the teacher, who will subtract the amount spent from their total earnings.

Step 2

Once the instructions have been given, the teacher allows the students to trade and make chains for ten to 15 minutes. After this time, she announces that because there are so many chains of high quality on the world market, the price is going down to three units of currency per chain of five links.

Step 3

After five more minutes at this price, the teacher announces that so many newspaper chains are now on the market that the price has dropped to one unit of currency per chain of five links. However, chains made of coloured paper are increasingly desirable, and can be sold for five units of currency per chain of five links.

Step 4

After five more minutes of play, the teacher announces that a new technology for making chains has been developed which produces a superior product; this involves stapling the links together rather than gluing them. Chains made of stapled links will earn the current world market price *plus* 15 units of currency per chain of five links (i.e., 16 units for a newspaper chain of five stapled links, 20 units for a coloured paper chain of five stapled links).

Five staplers are available, and may be bought from the teacher; a price should be set which would allow only the wealthiest groups to have the possibility of buying them.

Step 5

Once the staplers have been sold, the teacher should allow work to continue for another five to ten minutes. Then the game can be halted, and each group can tally its earnings.

Simulating world trade through The Chain Game

Step 6

The class discusses the following questions. The teacher should attempt to draw parallels with global trade throughout the discussion:

- Which group earned the most money? Which group earned the least? Why?
- What sorts of trades were negotiated? (Exchanging raw materials such as paper, for technology such as rulers and pencils; exchanges of technologies, such as scissors for rulers, etc.)
- What sorts of interdependencies, or divisions of labour, were worked out within the groups?
- Were any cooperative arrangements negotiated between the groups?
- What was the effect on the wealthier groups of the falling world market price for chains? What was the effect on the poorer groups?
- Which groups were able to purchase the new technology, i.e. the stapler?
- Why did the development of a new technology allow the wealthy groups to get wealthier, while the poor groups got poorer?

VARIATION

Distribution of resources, and introduction of new technologies, can be varied in order to more closely simulate world trading conditions.

FOLLOW-UP

1 The students research the origins of products they commonly use at home or school to discover the sources of the raw material and labour; they may find that many products have multiple origins.

2 They can also research inequalities which presently exist in international trade. What countries are involved? What countries benefit from such imbalances?

IN THE CURRICULUM

The activity requires cooperation, decision-making and computation skills. It can be done as part of a humanities, economics, or mathematics class.

Activity 10

Development that works

Age level 3: 16–18 years

OBJECTIVES

To help young people examine various interdependent factors which influence decisions about development projects, and contribute to their success or failure.

MATERIALS

For a group of 32: 32 copies of the **Plan for a hydro-electric plant** sheets (on pages 59 and 60); eight copies of each of the sheets headed **Infrastructure, Women, Environment,** and **Justice** (on pages 61–64).

PROCEDURE

Step 1

The participants are divided into four groups of eight. In these small groups, they are given copies of the **Plan for a hydro-electric plant** sheets to read. They are told that they are citizen advisors to a national planning commission that is proposing to fund the building of this plant. Projects of this type in this country have failed in the past. Their job is to learn about a specific aspect of the development process, and to decide if they approve of the project, based on their specialist knowledge.

Step 2

After they have had the chance to read the plan, two students from each small group are put in charge of finding out about infrastructure issues with regard to this project; two are in charge of women's issues (these may be either girls or boys); two are in charge of environmental issues; and two are in charge of justice issues.

Step 3

Students then form new groups. All the students who are in charge of infrastructure issues meet together, all those responsible for women's issues meet together, etc. In these new groups, each person is given a copy of the information sheet with the appropriate heading. They read this together, and discuss ways in which their particular issue might be taken into consideration in the planning process.

Step 4

Students then return to their original small groups. Each pair presents to the small group a brief position paper based on the points discussed in their issue groups.

Step 5

After each pair's report, the small group draws up a recommendation to either build or not build the plant, giving reasons for its decision. If it decides to go ahead with the construction, its recommendation should include a list of the main considerations necessary to ensure the success of the project for all the people who will be affected by it.

Step 6

The whole class comes together to discuss its results. The following questions can be raised:

- Are there other factors that should be considered in development planning besides the ones on the sheets?
- Which issues seemed most important in thinking about the construction of the plant? Why? Would this change if the proposed development project was a different one?
- Which issues seemed least important in thinking about the construction of the plant? Why? Would this change if the proposed development project was a different one?
- Were any of these issues related to each other? Which ones? How?
- What were participants' reactions to the process of the activity?

VARIATION

Students can research an actual development project, in their own country or abroad, and decide on what the critical issues are. In small groups, they can then write their own summaries of each issue and use these in the course of the activity.

FOLLOW-UP

Students can interview planners of development projects in their own country to find out more about the issues they take into consideration.

IN THE CURRICULUM

The activity uses skills in reading comprehension, anticipating consequences, decision making, and consensus-building. It could be used in a history or geography class.

Note that three of the four development issues were based on information in the *State of the World's Children Report*, 1989, UNICEF.

Plan for a hydro-electric plant (1)

worksheet

The village of Prima lies along a river in Terrania, a developing country.

Most of the women in Prima work as farmers. The food they grow is the basis of the villagers' diet. Some of the men in the village work at fishing. The fish caught in the river adds to the diet of the people of Prima. A few fish are also sold in markets in neighbouring towns and villages. This provides a small but much-needed source of income.

Prima has a small primary school. Most of the children in the village start school but not all of them finish, as they are needed to help with farming, fishing, and housework. At this time, about 70 per cent of the boys and 30 per cent of the girls finish primary school. The number of girls finishing school is gradually increasing. Prima has a small health clinic. Treating water-borne diseases is a major part of the clinic's work. Both the school and the clinic have a telephone and electricity.

Homes in Prima are built from local materials. Most lack telephones, electricity, running water and sanitary facilities. People use the river for drinking, washing, and disposal of waste. The primary fuel for cooking is wood, which is collected by the women from nearby forests.

The government of Terrania has decided that the standard of living in Prima could be raised by a project to build a new hydro-electric plant along the riverbank. The construction and running of the plant would provide paying jobs for the men of the village. The plant would also allow every home to have electricity.

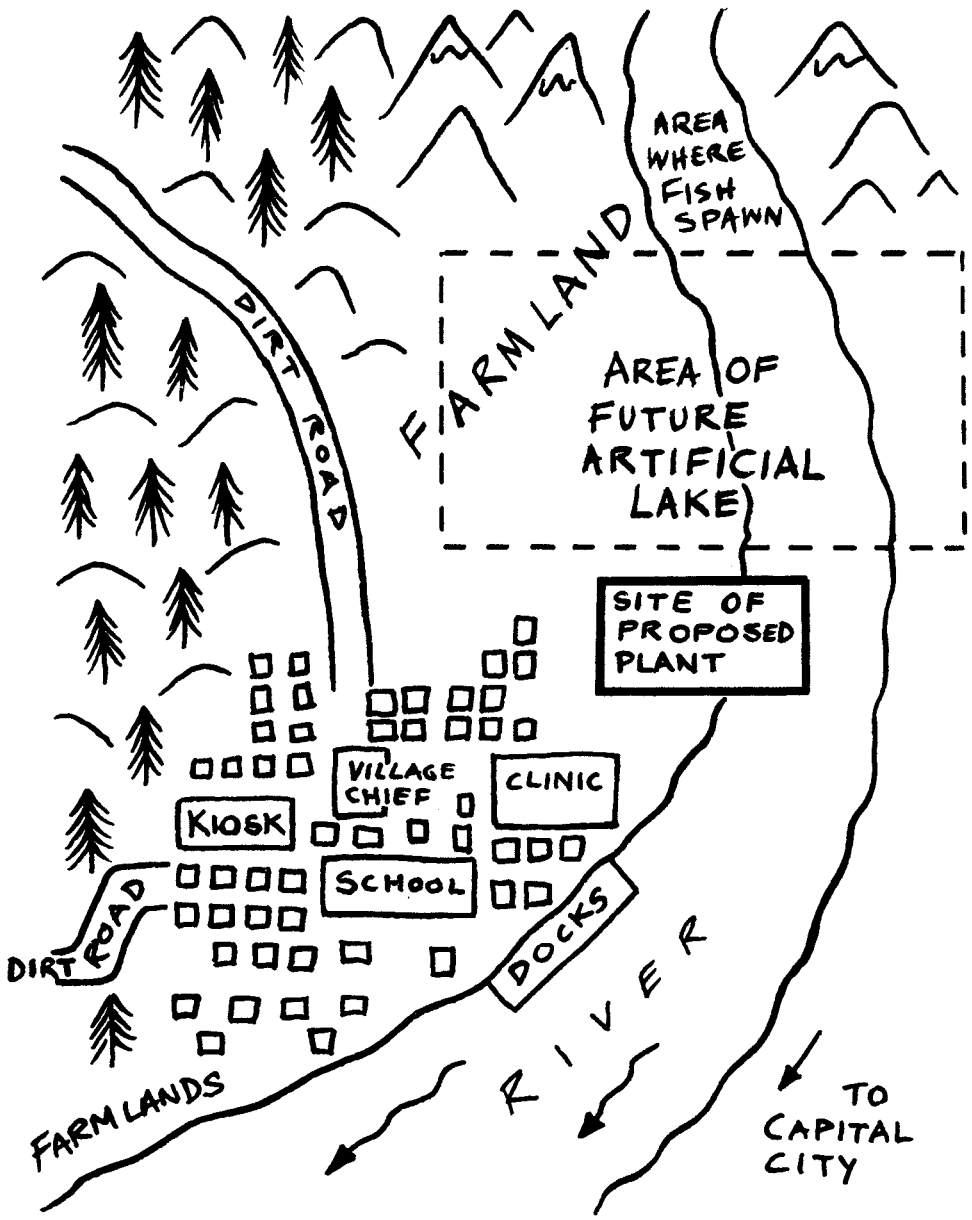
Any extra electricity produced could be sold to neighbouring towns and villages and the profits would further benefit the people of Prima.

Some flooding of low-lying flat lands on the riverbanks and near the village will occur as a result of the hydro-electric plant's operation. An artificial lake will be created upriver from the plant. The river will continue to flow in its present course below the plant, but the flow will be regulated by the plant's operation. The plans for the plant are sound from an engineering point of view.

Most of the funding for this project is coming from an aid organisation based in an industrialised country, and a loan from another industrialised country. Some money is also being given by the government of Terrania.

Plan for a hydro-electric plant (2)

worksheet

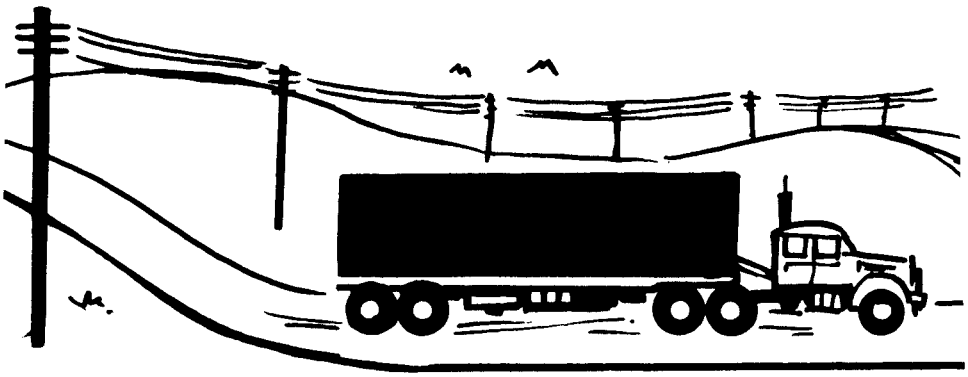


A map of Prima and the surrounding region, in the country of Terrania

Infrastructure

worksheet

Terrania's capital city is 200 kilometres downriver from Prima. It is located on the coast, where the river which passes through Prima reaches the sea. The capital city is home to all the major construction companies, and Terrania's only airport. All supplies for the construction project would have to pass through the capital in order to reach Prima.



There are only two dirt roads across rough terrain which connect Prima to the nearest towns and villages. At present, these roads are not maintained well enough to transport heavy machinery and equipment. For the construction to begin, it would be necessary to clear some of the trees in the hilly regions surrounding the village and widen the roads.

The main way to reach this village is to travel on the river. The river is easily navigable as one travels from the capital city to Prima, until approximately 10 kilometres before reaching Prima. At this point, the river is extremely wide but shallow, only 3 to 4 metres in depth. This can make it difficult, if not impossible, for large cargo ships to reach Prima. Prima has a small docking area which is used by fishing boats.

Telephone and electric services are present in the village, but on a limited basis; the school and clinic have phones and electricity, as well as the village chief and the owner of a kiosk. The lines are above ground, and are often out of service due to heavy rainfall during three months of the year. Repairs can be slow, owing to the conditions of the local roads.

What infrastructure issues must be taken into consideration if the construction of the hydro-electric plant is to proceed successfully?

worksheet

Women

Women grow most of the foods that are eaten in Prima. The land is not fertile enough to produce extra crops for local sale or export. The women have few tools or equipment which would make their work more efficient, and increase the amount they grow. The women of Prima use the river water to irrigate their crops.

By tradition, women usually do not fish. They rely on the men of the village to add to the family diet with fish. There are few other job possibilities for men in the area, so most men spend at least some time each day fishing.

The women also use the river for washing clothes, and as a place to collect drinking water. Because the village is located on the river, they presently need only walk a short distance in order to carry out these daily tasks.

There are several forest areas located 2 to 3 kilometres from the village. The women walk there each day to collect wood for cooking fuel. These trees are near the two dirt roads which lead to Prima. Construction of these roads destroyed some of the trees. While there are still enough trees, the women are increasingly aware of the need to protect the supply of wood which remains.

Women in the village are also aware of how water-borne diseases affect the health of their children. They are organising to look into ways of ensuring that safe, clean water supplies can be made available in village homes.

Recently, the government and non-governmental organisations have worked to increase the number of girls who go to primary school and help them stay in school longer. Adult literacy programmes are also becoming extremely popular among the women of Prima; 15 per cent of the women are now literate.

What issues pertaining to women must be taken into consideration if the construction of the hydro-electric plant is to proceed successfully?

Environment

worksheet

The river which flows through Prima has its source in a mountainous region upriver from the village. The water is clean and safe for drinking until it reaches Prima. There, the habit of using the river for waste disposal and for washing clothes causes an increase in the levels of bacteria and parasites, as well as some chemical contamination.

The flat lands on the banks of the river are the ones which are used by the village for farming purposes. Because they are so close to the river, they are easily irrigated.

A limited number of trees grow in the hilly regions outside the village. Many of these trees had to be cleared to build the two roads which lead to the village. As these trees are a source of fuel, they are gradually being used up. As more trees are cut, a great amount of erosion on the hillsides is occurring. Erosion is causing some of the soil from the low-lying farmlands to wash into the river.

The river is home to a number of species of fish. These fish live most of their life cycle in the parts of the river around Prima and downriver. Once a year, however, some species swim up the river toward its source to spawn in the region of the foothills of the mountains. The fish are sensitive to changes in their river environment such as increased pollution levels, temperature changes, etc. As the population of Prima grows rapidly, resulting in increasing levels of contamination in the river, a small but significant drop in the number of fish caught has been noted by the fishermen.

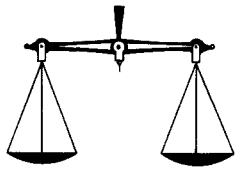
What issues pertaining to the environment must be taken into consideration if the construction of the hydro-electric plant is to proceed successfully?

worksheet

Justice

A number of groups within Terrania are interested in the proposed hydro-electric plant in Prima.

Terrania's main power company is eager to begin producing electricity in Prima, and supplying it to towns and villages in the region, as this will greatly increase its profits.



The construction companies in the capital city are competing for the contract to build the plant. At least one of these companies plans to use workers from a neighbouring country which has high levels of unemployment. These workers will accept lower wages than workers in Terrania.

Construction companies in two industrialised countries are also competing for the contract. One of these is in the country which is loaning money for the project, and the other is in the country which is home to the aid agency which is providing part of the funding for the plant. Because they have more modern equipment, they are offering to do the job for less than the construction companies in Terrania can.

Many people who live in the towns and villages around Prima are looking for jobs. Believing that construction of the hydro-electric plant will start soon, some families have moved to Prima and are living in temporary dwellings. They hope to be offered jobs when construction begins. It is expected that once approval is given for the project, migration of job-seekers to Prima will increase.

There are signs that these newcomers are being met with hostility by residents of Prima, who feel that they should be the first to be offered any available jobs.

Opposition to the plant is also coming from some residents who fear that the flooding caused by the plant will destroy the village's farmland and fishing waters. They are currently in conflict with others who feel that the plant will provide jobs and facilities which will raise the standard of living in the region.

What justice issues must be taken into consideration if the construction of the hydro-electric plant is to proceed successfully?

Activity 11

Population growth

OBJECTIVES

To familiarise young people with a range of factors which contribute to population growth in developing countries, and to help them understand the interplay of those factors.

Age level 3: 16–18 years

MATERIALS

A set of the **Population growth** cards (on pages 67 and 68) for each small group; large sugar paper and glue.

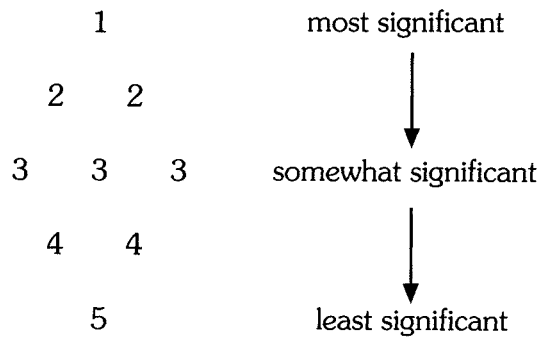
PROCEDURE

Step 1

The young people form groups of three to four. Each group receives a set of the **Population growth** cards, cut into individual sections. They are given several minutes to read all the cards.

Step 2

Students then arrange the cards in a diamond ranking according to their significance to the issue of population growth. The most significant card should be placed at the top level of the diamond, followed by two cards of high significance. The third level contains three cards of some significance to the issue, the fourth level has two cards of lesser significance, and the bottom of the diamond has the card the group judges to have the least significance:



It should be made clear to the young people before beginning that there is no one right answer to this activity. Once the group has agreed on its arrangement, it glues its cards onto a large sheet of sugar paper.

Step 3

Small groups then come together to discuss the reasons for the various arrangements. The following questions can be raised:

- Did any of the factors affecting population growth surprise you?
- Were there any other factors which you felt should have been included?
- Was there general agreement on which factors were most and least significant? Why or why not?
- Which factors seem most strongly inter-related? Why?

VARIATION

Instead of making a diamond ranking, the small groups use the cards to form a flow chart. They do this by laying the cards on the large sugar paper in a way that shows the relationship of the various factors – sequencing them, clustering them, etc. Lines or arrows can be drawn between the cards to show further how they affect each other.

FOLLOW-UP

1 Groups research countries which are attempting to control population growth, such as Taiwan and South Korea, where successful land reform has been carried out.

2 They can also do further research on the relationships between infant mortality, life expectancy, and population growth rates. Useful sources of statistics are annual publications such as the *State of the World's Children Report* (UNICEF), the *World Population Data Sheet* (Population Reference Bureau), and the *World Development Report* (World Bank).

IN THE CURRICULUM

The activity requires students to see relationships, understand cause and effect, anticipate consequences and make decisions. It could be used in a history or geography class in which conditions in developing countries are being considered. If the statistics are explored in depth, it could also be incorporated into a mathematics class.

Population growth cards (1)

worksheet

LAND REFORM

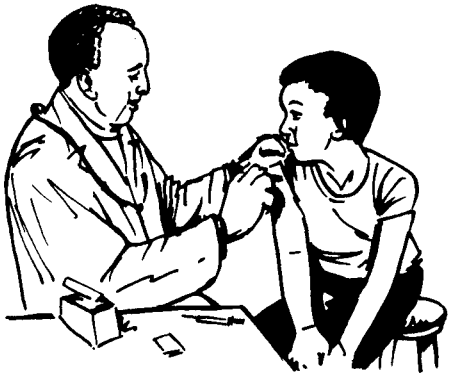
When land is redistributed so that the people who farm it own it (rather than wealthy landlords or multinational companies), the living conditions of the low-income farmers are improved. As poverty is reduced, people can have better health care and education: this leads to more babies surviving, so couples can have fewer children. The birth rate goes down in countries where the standard of living improves; so measures such as land reform, which reduce poverty, can contribute to population control.

DEBT REDUCTION

A major cause of poverty in developing countries is debt owed to industrialised countries; poverty in turn is linked to the conditions which encourage higher birth rates. If industrialised countries are serious in their concern over population growth, they should take the initiative by easing or eliminating debt. They should also encourage developing countries to produce the food they need to feed their people, rather than produce crops like cocoa and coffee for export.

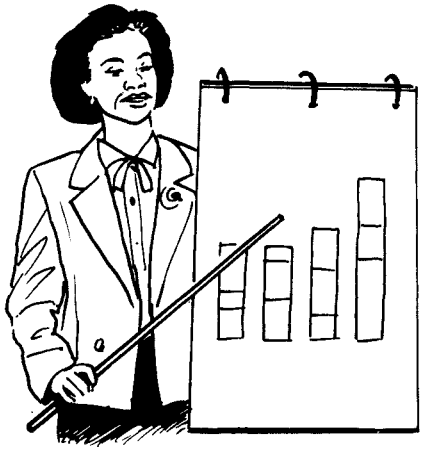
HEALTH CARE

Because of poor health care, parents in developing countries are afraid their children won't live to be adults. So they have many children, hoping that some will survive. Research shows that when deaths of infants and children are reduced, the birth rate drops as well. Providing good health care and sanitation to all is, therefore, the best way to control population growth.



EQUAL OPPORTUNITIES FOR WOMEN

Providing equal employment opportunities for women is the key to slowing population growth. When women feel they have a choice of roles in their lives, beyond bearing children, they often decide to have fewer children.

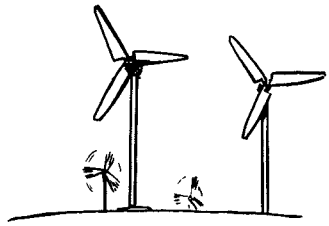


worksheet

Population growth cards (2)

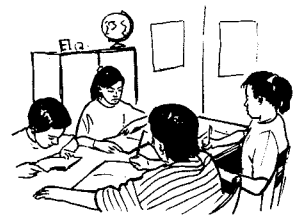
APPROPRIATE TECHNOLOGY

In developing countries, rural families need to have many children who can help out with farm work. If appropriate technology could be developed to reduce the amount of labour required, parents could choose to have smaller families.



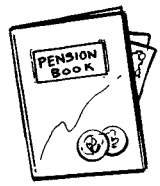
EDUCATION

In countries where people are better educated, the birth rate drops. People who receive education know more about health practices and family planning, and have more employment options. To reduce population growth, we should focus on education.



CARE OF THE SICK AND ELDERLY

People in developing countries have many children because they need someone to take care of them when they are elderly or ill. Countries should be encouraged to develop social security systems, whereby the elderly can be assured of pensions and health care. This alone would enable parents to have smaller families.



FOOD DISTRIBUTION

The world has enough food to support a population far greater than the one which presently exists. The real issue is not reducing the birth rate; it is ensuring that food resources are distributed to those who need them most.

FAMILY PLANNING

In order to reduce overpopulation, family planning information and services must be made available to all couples in developing countries.

Activity 12

The coffee game

OBJECTIVES

To enable young people to experience, through a simulation, the effects of asymmetrical interdependence between industrialised and developing countries, in this case with regard to the orientation of an economy towards cash crops.

Age level 3: 16–18 years

MATERIALS

For each farmer: a pencil; an **Information for farmers** sheet (page 74); a **Typical neffan farm** sheet (page 76); and a **Farmer's tally sheet** (page 77).

For each pair of representatives of the multinational food corporation: pencils; an **Information for representatives of a multinational food corporation** sheet (page 75); several copies of the **Neffan currency** sheet (page 78); a **Corporation's tally sheet** (page 79).

Calculators, if available, will be helpful in completing tally sheets for both farmers and representatives.

PROCEDURE

Step 1 (approximately 15 minutes)
The class is divided into roles as follows:

Farmers in a developing country: four groups of four people each.
Representatives of a multinational food corporation: four groups of two people each.

The farmers and corporate representatives should read over their information sheets, and follow the instructions on them.

(Note: Farmers complete tally sheets individually; the corporate representatives do their tallies as a pair.)

The teacher plays the role of the Controller during the simulation. The Controller reads each of Steps 2 to 6 aloud, and monitors the progress of the groups.

As the simulation progresses, the calculations done by both farmers and corporate representatives become increasingly complicated. In order to assist the teacher in monitoring their work, sample tally sheets for farmers and representatives have been completed, and can be found on pages 80 and 81. The sample farmer's tally sheet is based on the assumption that the farmer has given two acres of land to coffee-growing each year, and has borrowed no money. Should the farmer make different decisions, the tally sheet will differ from the sample.

Step 2 (approximately 10 minutes)
The Controller reads the following:

'As you understand from your information sheets, you, the farmers of Neffa, are looking for ways to improve your economic situation, while, you, the representatives of Bev-Mart, wish to expand your company's operations to Neffa. Please take this opportunity to meet together to discuss whether you can come to an agreement that benefits you both.'

The Controller then matches each pair of representatives of the corporation with one group of four farmers, and allows them to negotiate.

Step 3 (approximately 15 minutes)
The Controller reads the following:

'Congratulations to those of you who reached an agreement. Let us now imagine that a year has passed. Bev-Mart has helped Neffan

'Farmers' and 'multinational corporations' negotiate over growing cash crops

farmers start growing coffee, and the farmers have just harvested their first crop. Representatives of Bev-Mart, it is now time for you to pay each farmer 150 neffs per acre given to growing coffee, as promised. When this is done, farmers and corporations should fill in the "End of Year" column on their tally sheets.

Then ask yourselves – has the coffee-growing project been a success for you? If so, I recommend that corporation representatives suggest to farmers that they give two additional acres to growing coffee in the upcoming year. Farmers, consider how you might benefit from this offer, and decide how much coffee you will grow next year.'

Step 4 (approximately 15 minutes)
The Controller reads the following:

'Let us now image that we have come to the end of the second year of growing coffee. Unfortunately this year there was a drought in Neffa. The coffee crop survived because Bev-Mart saw to it that the coffee fields were irrigated. But your food crops suffered. You were only able to grow half as much food as you did last year: 50 neffs worth on each acre of land. Fortunately, if you have been growing coffee, you now have money in the bank so that you can survive a bad year by buying the food you need. You may have to use up all your savings, but at least your families won't starve.

Once you have filled in the column on your tally sheets under "End of Year 2", consider the fact that the drought is coming to an end. Next year you could be earning a good amount of money again. Representatives of Bev-Mart can suggest that if the Neffans give over two more acres to coffee-growing, they may be able to recover the loss which occurred due to the drought.'

If the farmers want to use their savings to buy food, the Controller should act as the 'market', taking their money and giving them imaginary food in return.

Step 5 (approximately 15 minutes)
The Controller reads the following:

'It is now the end of the third year of growing coffee. Happily for the Neffans and for Bev-Mart, the drought has ended. The land on which the farmers are growing food is now producing a full 100 neffs worth of crops again.

However, there have been some changes on the world coffee markets. Because so much more coffee is being grown, the price is dropping. Bev-Mart now receives only 600 neffs for the coffee

produced by one acre of land. So they can only pay the farmers 75 neffs per acre this year.

This may present a temporary hardship to you farmers. Some of you may not be able to provide 100 per cent of the food your families need this year. However, Bev-Mart is prepared to loan money to those of you who need help in meeting your families' food needs. Bev-Mart representatives would also like to speak to you about giving two more acres of your land over to growing coffee. If you had grown this additional amount of coffee this year, you still would have earned enough money to feed your families. As you fill in your tally sheets under the column headed "End of Year 3", consider the extra income and security that more land given to coffee would bring in the years to come.'

Step 6 (approximately 15 minutes)
The Controller reads the following:

'It is now the end of the fourth year of growing coffee. The good news this year is that the world market price of coffee has remained stable – Bev-Mart can again pay Neffan farmers 75 neffs per acre of land given over to coffee.

However, it may be a hard year for the farmers again. Because so much Neffan land is now used for growing coffee, there is less food being produced. Since food is scarce, the prices have doubled. The food you produce on each acre of your land is now worth 200 neffs, rather than 100. But the food you must buy also costs you twice as much.

But help is at hand. Bev-Mart can loan you money. Or, Bev-Mart can buy some of your land, at a price to be agreed upon by yourselves. Then you can work on the land as an employee of Bev-Mart, and be paid a regular wage.

Unfortunately, you cannot easily convert your land from growing coffee to growing food. Four years of coffee-growing has depleted the soil, and it will no longer support food crops.

However, I trust that once you have all filled in your tally sheets under the column headed "End of Year 4", you will be able to negotiate a workable agreement.'

Allow ten to 15 minutes for negotiations between the farmers and the representatives of the corporation, then stop the simulation.

Step 7

Students who played the role of the corporate representatives can be asked to explain what their financial situation was before coffee-growing started, and what it is now, after five years.

Students who played the role of the farmers then do the same. The teacher should be sure that these points are made:

- some farmers may now be in debt;
- and most will be suffering from malnutrition.

Step 8

Then discuss the following questions:

- How were the two groups – farmers and corporations – interdependent?
- Did their interdependence benefit both groups equally?
- Why is it that growing a cash crop seemed to be a good idea at first?
- What were some of the unforeseen economic changes that occurred to make the production of coffee a disadvantage for the farmers?
- What might have to be done at this point to help the farmers (financial assistance from other countries, food aid, private fund-raising)?
- How could the farmers of Neffa be helped to become self-sufficient again?

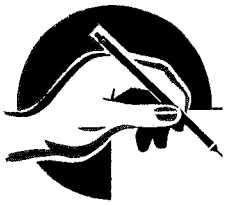
Discuss parallels between the simulation and actual relationships between industrialised and developing countries. It should be pointed out to the students that the simulation is unrealistic in some ways; for example, multinational corporations have assets far greater than those in the simulation; farmers in developing countries may not own as much as ten acres of land. These factors would cause the gap between the two groups to be even greater than it was in the simulation.

FOLLOW-UP

Students research countries which are dependent on cash crops to find out more about their economies.

IN THE CURRICULUM

The simulation involves skills in role playing, computation, examining different perspectives, anticipating and analysing consequences. It would be appropriate for a history or geography class, and could also be adapted for use in a mathematics class.



worksheet

Information for farmers

You are farmers in Neffa, a developing country. Each of you owns 10 acres of land. On your land, you grow grain and vegetables. Each acre of land produces food worth 100 neffs, the local unit of currency.

Each of you has a family to support. You need food worth 1000 neffs to feed your family for a year. At this time, you are producing just enough food to feed your family. You eat everything you grow, and have nothing left over to sell. You have no money in the bank.

You know that as a subsistence farmer, you are at the mercy of many forces you cannot control such as the weather, or insects. A drought, or a new variety of insects could destroy your way of life.

You would like to know about ways that you could earn more money from your land, so that your family's lives could be more secure. You know that having some money in the bank would give you greater protection against natural disasters.

You would also like to see your children have a better standard of living than you do. You believe, therefore, that your children must get an education. You have completed primary school yourself, and you know how important being able to read, write, and do mathematics has been in enabling you to run a successful farm. If your children could go to secondary school, or even university, they would have more opportunities. But further education costs money; you want to find ways to earn more money from your land.

Representatives from the Bev-Mart Corporation will be coming to speak to you about growing coffee on your land. While you are very knowledgeable about your land and your crops, you know nothing about world markets. However, this may be the opportunity you have been waiting for to earn extra money from your land.

Before beginning the simulation, you should be sure you have the sheet of paper headed **A typical Neffan farm**. Each of the ten boxes on this sheet represents once acre of your land, on which you are currently growing food. If, after meeting with the representatives from Bev-Mart, you decide to grow coffee, draw an X through one of the boxes for each acre of land you grow coffee on. You should also have a **Farmers' tally sheet**, and you should fill in the column labelled 'Before growing coffee' right now.

Information for representatives of a multinational food corporation

worksheet

You work for Bev-Mart, a multinational corporation that produces a variety of food products. You want to find a low cost source of coffee to sell in industrialised countries. You would like to get farmers in Neffa, a developing country, to use part of their land for growing coffee.

You are interested in starting business in Neffa because many of the farmers there are living at a subsistence level. When droughts occur, or insects destroy the food crops, famine affects huge numbers of the farmers, causing poverty, illness, and death. The farmers lack the education and training to find other jobs, and may become refugees. But by growing coffee, farmers would have a regular income; they would be able to save money; they would be able to provide education for their children, a high priority among the Neffans. The government of Neffa supports Bev-Mart's investment as a way of raising the standard of living.

Because Bev-Mart anticipates that coffee-growing in Neffa will be profitable for the corporation, you will supply the farmers with the seed, fertiliser, equipment, and technical advice that they will need in the first year to start producing coffee.

You will meet some farmers and try to convince them each to give two acres of their land to growing coffee. Tell them that they will be paid 150 neffs, the local unit of currency, for the coffee that is produced by one acre of land (i.e., they will earn 300 neffs in the first year if they grow two acres of coffee). Though they won't have as much land to grow food, they will make enough money to buy any extra food they need, and to put some money in the bank as well. (Currently, each acre of land produces food worth 100 neffs; each farmer owns 10 acres of land, and the food they grow is just enough for their families to survive on. They do not have any food left over to sell for a profit.)

When you sell the coffee in industrialised countries, you will receive the equivalent of 750 neffs for the coffee grown on one acre of land. Your profit will be 600 neffs per acre given to growing coffee.

Working with your partner, plan what you will say to convince the farmers to grow coffee. Working as a pair, you should also fill in the boxes on the **Corporation's tally sheet** in the column labelled 'Before growing coffee' right now. Your company has 10,000 neffs in a Neffan bank at the start of the simulation. Make sure you have some of the sheets headed **Neffan currency**. You may fill in the necessary amounts as the simulation progresses.

worksheet

A typical Neffan farm

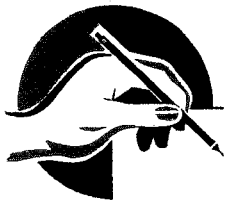
Farmers: Each of these boxes represents one acre of your farm land. Each time you give an acre over to growing coffee, draw an X through one of the boxes.

Farmer's tally sheet

worksheet

	Before growing coffee	*At the end of year 1*	*At the end of year 2*	*At the end of year 3*	*At the end of year 4*
A Number of acres for coffee					
B Amount of money earned (row A × Bev-Mart price)					
C Number of acres for food					
D Cash value of one year's food for your family					
E Cash value of food grown					
F Amount of money spent on food					
G Total of rows E and F					
H Percentage of family's food needs met (ratio of row G/row D)					
I Money in the bank (subtract row F from row B)					

If at any point you need to borrow money, note the amounts here:



worksheet

Neffan currency

neffs	neffs
neffs	neffs
neffs	neffs
neffs	neffs
neffs	neffs

Corporation's tally sheet

worksheet

	Before growing coffee	*At the end of year 1*	*At the end of year 2*	*At the end of year 3*	*At the end of year 4*
A Total number of acres for coffee					
B Total amount of money paid to farmers					
C Amount of profit you earned this year					
D Amount of money in the bank (add total from previous year)					

If at any point you loan money to the farmers, note the amounts here:

worksheet

Sample farmer's tally sheet

	Before growing coffee	*At the end of year 1*	*At the end of year 2*	*At the end of year 3*	*At the end of year 4*
A Number of acres for coffee	*0*	*2*	*4*	*6*	*8*
B Amount of money earned (row A × Bev-Mart price)	*0*	*300*	*600*	*450*	*600*
C Number of acres for food	*10*	*8*	*6*	*4*	*2*
D Cash value of one year's food for your family	*1000*	*1000*	*1000*	*1000*	*2000*
E Cash value of food grown	*1000*	*800*	*300*	*400*	*400*
F Amount of money spent on food	*0*	*200*	*700*	*450*	*600*
G Total of rows E and F	*1000*	*1000*	*1000*	*850*	*1000*
H Percentage of family's food needs met (ratio of row G/row D)	*100%*	*100%*	*100%*	*85%*	*50%*
I Money in the bank (subtract row F from row B)	*0*	*100*	*0*	*0*	*0*

Amount borrowed: *0*

Sample corporation's tally sheet

worksheet

	Before growing coffee	*At the end of year 1*	*At the end of year 2*	*At the end of year 3*	*At the end of year 4*
A Total number of acres for coffee	*0*	*8*	*16*	*24*	*32*
B Total amount of money paid to farmers	*0*	*1200*	*2400*	*1800*	*2400*
C Amount of profit you earned this year	*0*	*4800*	*9600*	*12,600*	*16,800*
D Amount of money in the bank (add total from previous year)	*10,000*	*14,800*	*24,400*	*37,000*	*53,800*

Amounts loaned: ?