

Population Growth and World Food Supplies

Learning Outcomes

After completing this unit students will:

- understand and evaluate contemporary social and economic issues
- summarize the main points of the discussion for the benefit of the whole group
- summarize the text with the help of mind map
- write a letter to the editor expressing their ideas, points or opinions clearly

Pre-reading

- ◆ What do you understand by the term 'over-population'?
- ◆ Why is over-population a big challenge of twenty first century?
- ◆ How are population and food supplies interdependent?



For the Teacher:

Use pre-reading activity to give students an understanding of the text. Encourage them to give their views on the picture. Why is the China Wall shown? How is it related to the population issue?

- (1) The alarming and incessant growth of population is causing serious economic problems in almost all continents. Great pressure is being placed on arable land, water, energy, and biological resources. As the world population grows, the food problem will become increasingly severe. The most vulnerable will be population in developing countries. The per capita availability of food grains has been declining for the past 25 years. Certainly with a quarter million people being added to the world population each day, the need for grains and all other food will reach unprecedented levels.

Below, world population and its growth trends are given.

- 10,000 years ago, 10 million people
- By 1850, population was 1 billion
- 80 more years to reach 2 billion in 1930
- 45 years, it doubled again (4 billion in 1975)
- 12 years to reach 5 billion (1987)
- 6 billion in 1999
- By the year 2020, there will be 8 billion

- (2) There are about quarter of a million people added to the planet per day. This exponential growth is mostly happening in the developing nations.
- (3) More than 99 percent of the world's food supply comes from the land, while less than 1 percent is from oceans and other aquatic habitats. The continued production of an adequate food supply is directly dependent on ample fertile land, fresh water and energy. As the human population grows, the requirements for these resources also grow. Even if



For the Teacher:

- Share with students the present situation as we have already started feeling the effects of over population.

these resources are never depleted, on a per capita basis they will decline significantly because they must be divided

What does the word "depleted" mean?


among more people. At present, fertile agricultural land is being lost at an alarming rate. The shortage of productive fertile land combined with decreasing land productivity is the major cause of current food shortages.

Water is another critical item for all crops. Massive amount of water (4) is required during the growing season for cultivation. In fact, agricultural production consumes more fresh water than any other human activity. In many countries, people are facing shortage of fresh water. Competition for water resources among individuals, regions, countries and associated human activities are already occurring with the current world population. Water resources, critical for irrigation, are under great stress as populous cities, states, and countries require and withdraw more water from rivers, lakes, and aquifers every year. A major threat to maintaining future water supplies

Do you also face shortage of water in your locality? Why?

is the continuing over-use of surface and ground water resources.

Fossil energy is another prime resource used for food (5) production. Nearly 80 per cent of the world's fossil energy is being used by the developed countries. The intensive farming technologies of the developed countries use massive amounts of fossil energy for fertilizers, pesticides, irrigation, and for machines as a substitute for human labour. In developing countries, fossil energy has been used primarily for fertilizers and irrigation to help maintain yields rather than to reduce human labour inputs. Because



For the Teacher:

Help students find the cause in the passage, ask the question "Why"?

Help them find the effect, ask question "What is the result"?

Sometime multiple causes may lead to one effect and sometime one cause may lead to many effects. Ask students to look for the clue words (transitional devices) that show cause-and-effect relationships, such as because, since, as a result, so, the reason that, and consequently.

fossil energy is a finite resource, its depletion accelerates as population needs for food and services escalate. Thus, cost of fuel increases everywhere.

How is fossil energy a finite resource?

(6) Certainly improved technology will assist in more effective management and use of resources, but it cannot produce an unlimited flow of those vital natural resources that are the raw materials for sustained agricultural production. For instance, fertilizers enhance the fertility of eroded soils, but humans cannot make topsoil. Indeed, fertilizers made from finite fossil fuels are presently being used to compensate for eroded topsoil. A productive and sustainable agricultural system depends on maintaining the integrity of biodiversity.

(7) Strategies for the future must be based on the conservation and careful management of land, water, energy, and biological resources needed for food production. Yet none of these measures will be sufficient to ensure

What other word you can use to replace "optimum"?

adequate food supplies for future generations unless the growth in the human population is simultaneously curtailed. Several studies have confirmed that to maintain a relatively high standard of living throughout the world, the optimum world population should be less than 2 billion. Therefore, from now until an optimum population is achieved, strategies for the conservation of land, water, energy, and biological resources are to be implemented effectively. Maintaining a sound and productive environment all over the world is essential.

THEME

The world's population is more than 7.0 billion, and it is still growing. It has about doubled in the past forty years. We are now faced with the issue of over population. With the population so high, resources are running out. If things continue like this we are going to encounter major problems in the future. Therefore there is a great need for countries to limit their expanding populations.

GLOSSARY

aquifers	.....	a layer of rock or soil that can hold or transmit water
arable	.....	land used or suitable for growing crops
critical	.....	serious
current	.....	present-day
depleted	.....	reduced
enhance	.....	improve
escalate	.....	to become or make something greater or more intense
fossil	.....	an animal or plant that lived many thousands of years ago and is preserved in rock or as a piece of rock
integrity	.....	righteousness
vulnerable	.....	in danger

VOCABULARY**A. Give meaning of each word as used in the text.**

incessant, adequate, integrity, declining, pesticides, massive, sustained, eroded, unprecedented

B. Make sentences of the following words.

ample, depleted, critical, current, enhance, optimum

C. Complete the following sentences with the words beginning with prefix *dis-* or *un-*.

1. My shoe is _____
(not tied)

The prefixes *dis-* and *un-* mean 'not'.

2. Waqar _____ with Nazish.
(does not agree)

3. Ali is _____ to beat me in the video game.
(not able)

4. Waheed _____ his parents.
(does not obey)



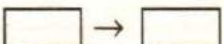
5. Our teacher says she does not want _____
homeworks handed in. (not finished)

READING COMPREHENSION

A. Answer the following questions.

- Which areas are most affected by incessant growth in population?
- Why are the developing countries going to suffer more due to over population?
- What is the major cause of food shortages and malnutrition?
- How are water resources under great stress?
- What is the effect of depletion of fossil energy?
- What is the limitation of improved technology?
- How can sufficient food supply be made possible for the future generation?
- What strategies should be adopted for safe future?

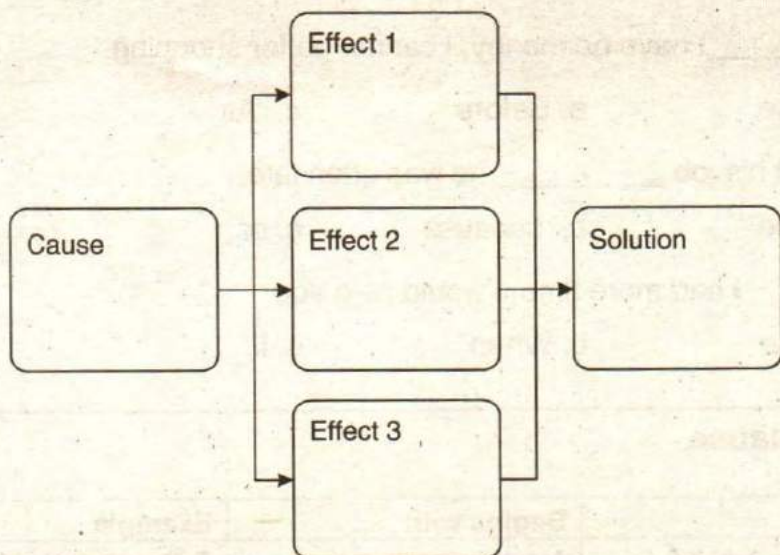
Patterns of Text Organization

 Text structure	 Signal words	Signal to reader
Cause and effect 	therefore, so, for this reason, as a result, is caused by, this leads to, effects of, due to	Evidence of cause(s) and effect(s) will be given.

For the Teacher:

- Help students analyze the paragraphs to identify words, phrases or sentences that support the main idea through cause and effect.
- Help them organize information using organizational pattern of cause and effect to complete the activity B.

- B. Read the text and put information into the graphic organizer showing cause and effect.



GRAMMAR

Subordinating Conjunctions

Subordinating conjunctions connect two groups of words by making one into a subordinating clause.

Time	Condition	Cause and Effect	Contrast
after, when, until, soon, before, once, while, as soon as, whenever, by the time	if, whether or not, provided, in case, unless, even if, in the event	because, as, since, in order that, now that, as much as	though, while, although, whereas, even though

- A. Choose the appropriate conjunctions.

1. He couldn't go home, _____ he had no place to go.
 a. but b. for c. though

For the Teacher:

Reading B: Ask students to read the text silently and identify words, phrases or sentences that support the main idea through cause and effect.

2. _____ it was hot, he was wearing a coat.
a. When b. Although c. Then
3. _____ I have no money, I cannot go for shopping.
a. Since b. Before c. As
4. He lost his job _____ he was often late.
a. while b. because c. or
5. _____ I had more time, I would help you.
a. Since b. When c. If

Adverb Clause

Function	Begins with	Example
Modifies a verb, an adjective, or an adverb in the main clause.	A subordinating conjunction such as after, although, because, if, since, when, where	Father called me <i>when he arrived home.</i>

B. Replace each adverb clause by an adverb or adverb phrase.

- I have not been well since I returned from Murree.
- I am glad that he has recovered from his illness.
- As soon as I saw the cobra I ran away.
- He may go home after his work is finished.
- I did not pay her, as I had no money with me.

C. Underline the adverb clauses in the following sentences and state whether each is an adverb clause of time, place, reason, purpose, result, manner, comparison, condition or concession.

1. The frightened child ran as fast as he could.
2. Even if they hurry, they may not get there on time.
3. The player is out of the match because he has hurt himself.
4. If she recovers quickly, she will join the team.
5. The speaker was so absorbed in his speech that he forgot the time.
6. She switched on the television so that she could listen to the news.
7. They had left before the concert ended.
8. He acted as if he had owned the car.
9. Where the road bends dangerously, be more careful.
10. He will get a good job when he graduates.



For the Teacher:

Grammar C: Tell students they can identify the types of adverbial clauses with the help of subordinating conjunction used in that sentence. Therefore it is important to differentiate between subordinating conjunctions of time, condition, cause and effect, condition, purpose etc.

D. Match the two clauses and make meaningful sentences.

- | | |
|-----------------------------------|---|
| 1. The rain started | a. if you don't try hard. |
| 2. I had written many books | b. because the director did not show up. |
| 3. They had to cancel the meeting | c. he went out without an umbrella. |
| 4. You won't succeed | d. while I was driving home. |
| 5. Although it was raining | e. before I was awarded the literature prize. |


ORAL COMMUNICATION SKILLS

Prepare a group presentation on the following.

City life has become increasingly difficult because of over population.

WRITING SKILLS

- A. Write a précis of paragraph 6.
- B. Write an essay on "Over Population".

 **For the Teacher:**

Writing B: Ask students to develop a mind map first, and make an outline of the points/details that they want to include in their essay. Groups of students may be formed to conduct the activity.