



INTEGRATED PEST MANAGEMENT

Unit 3 Lesson 8 Exploding Populations

Focus Areas: Biodiversity; Social Studies, Math, Science

Focus Skills: Interpreting statistics, understanding multiple viewpoints, recognizing trends, forming and defending opinions

Level of Involvement: MINIMAL

INTEGRATED PEST MANAGEMENT
Unit 3 Lesson 8: Exploding Populations



University of
Connecticut
College of Agriculture
and Natural Resources
Cooperative Extension System



*Dedicated
to Reducing
Pesticides*



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H I P **P**^O = Population

Objectives

- * To understand the problem of increasing population worldwide
- * To recognize the relationship between population and availability of natural resources

Essential Questions

- * How does increasing population impact the environment?
- * What can be done to address this problem?

Essential Understandings

- * The world population as a whole is reaching critical mass.
- * Natural resources and food production cannot support limitless population growth.
- * Overpopulation is paired with overconsumption in creating the current problem.
- * Better methods of crop production and protection can help alleviate the problem.

Background

Better living through technology is a two-edged sword. Longer life spans and reduction in infant mortality rates, coupled with increased demands for goods and higher standards of living expectations are resulting in increases in population and decreases in available natural resources.



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Background (continued)

Unfortunately the highest rate of population increase is often times in countries least able to sustain the additions. Population control is a highly emotional issue with embedded religious and cultural issues. Therefore, it is paramount to world survival that the most effective long range plan for increased food production and reduced environmental degradation be put in place worldwide.

Read Handout 1.



Vocabulary

cartogram	a map which shows area based on a specific criteria rather than political boundaries
developing nations	countries in which the population growth rate exceeds available resources
developed nations	countries in which consumption of natural resources exceeds population growth
environmental degradation	loss of natural resources
hectare	2.5 acres of land
natural resources	renewable and non-renewable materials supplied by nature
sustainable development	growth or expansion which the environment is capable of supporting



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Challenge

Decide which problem should become the priority: population control, reduction of consumption, or elimination of malnutrition and starvation.

Logistics

Time: two or three 45 minute periods

Group size: 2 to 30

Space: comfortable seating

Materials

Internet access

overhead projector

Overhead 1 World Population Cartogram *

Handout 1 Background *

Handout 2 Internet Addresses, Essay Topics and Directions *

Assessment for an Expository Piece *

Assessment for an Oral Report *

Assessment for a Graph *

* single copy provided



Preparations

- * Arrange time for use of multiple computers with Internet access
- * Prepare copies of Handouts 1 and 2
- * Prepare copies of assessment choice
- * Set up overhead projector



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Activity

Introduction

1. Show Overhead 1.
2. Compare Overhead 1 to a world map in student social studies text or atlas.
3. Introduce the vocabulary word Cartogram.
4. Discuss the differences between the cartogram and the geographical map.
5. Distribute Handout 1 Background and read.
6. Review remaining vocabulary.

Involvement

1. Tell participants, using the Internet, they will be investigating the relationship of population to availability of natural resources in order to form an opinion on global priorities.
2. Distribute Handout 2 Internet Addresses, Essay Topics, and Directions.
3. Allow time for group to access, read Internet sources and take notes.
4. Have individuals complete an essay (may be done as a homework assignment).



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Follow Up

1. Hold a group discussion on the opinions, feelings and questions resulting from the Internet investigation.
2. Poll the group to determine what they feel is the priority focus:
 - a. Overpopulation
 - b. Overconsumption
 - c. Malnutrition and starvation
3. Based on the results of the poll and discussion, assign individuals to teams. Each team prepares a position statement and defends its choice giving reasons to support its opinion.
4. Each team presents its ideas.

Follow Through Create a graph illustrating one aspect of the population explosion problem

Focus Area: Math

Focus Skills: Preparing a visual aid, understanding statistics

Answer Key none needed

Assessment

Select the appropriate options and evaluate using **Assessments**.

Option #1 Assess summaries of Internet articles

Option #2 Assess the group presentation

Option #3 Assess the graphs



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Resources



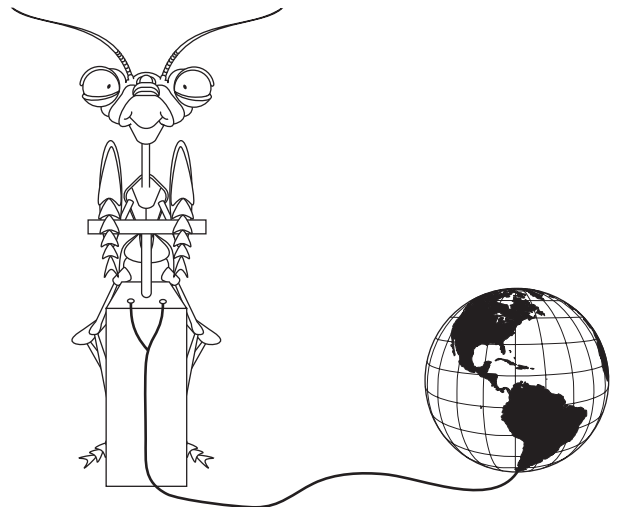
Internet Websites

The Internet has multiple sites on overpopulation and loss of natural resources. See Handout 2.



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Notes





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Notes



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Handout 1

Background

Ten thousand years ago, the United States had a population of 3 million people, which is about the population of the state of Missouri. Humans moved in bands or groups as they searched for better habitats.

By the period known as the Renaissance, one-half billion people inhabited the globe. By 1790, the early period of the Industrial Revolution, the population had grown to 1 billion. One hundred thirty years later, by 1920, it had mushroomed to 2 billion. By 1950 it surged to 2.5 billion. Over three and one half billion people have been added since 1950. The last 2 billion people were added in the last 25 years, and the last 1 billion were added in the last 12 years. In 1943, the United States had a population of 135 million. In 2001, it was 270 million. Of the world population, 1.5 billion live on less than \$1 per day. The children are malnourished with brains that don't develop properly. Individual human talent is unable to express itself.

The new millennium is a vastly different place with vastly different prospects.



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Handout 2

Internet Addresses, Essay Topics and Directions

A. Directions:

1. Use the following Internet sites to research the topics of overpopulation and overconsumption.
2. You may find additional sites on your own to deepen your understanding of these international problems.
3. Take notes on your reading as you will write an essay in response to your research.

Must read: Select one from each entry for a total of four

1. World Game
<http://www.worldgame.org/wwwproject/what09.html>
or
<http://www.worldgame.org/wwwproject/what01.html>
2. Overpopulation Quick Facts
http://www.ecofuture.org/pop/facts/quick_facts.html
or
Sustainability, Carrying Capacity
<http://www.overpopulation.org/solutions.html>
3. Feeding a Future World
<http://www.jhuccp.org/pr/m15/m15chap3.shtml>
and
Land Degradation
http://www.globalchange.umich.edu/globalchange2/current/lectures/land_deg/land_deg.html (page 2 and 3)
or
Measuring Population's Impact (side bars)
<http://www.jhuccp.org/pr/m15/m15boxes.shtml> (pages 1,2;7-11)
4. Population and the Environment
http://www.actionbioscience.org/environment/hinrichsen_robey.html



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Handout 2

Internet Addresses, Essay Topics and Directions (continued)

Further information: Select a minimum of two readings:

<http://www.Johnstons.org/roy/pages/populat.html>

<http://www.earthgreen.org/overpopulation.htm>

<http://www.overpopulation.org/faq.html>

<http://www.theatlantic.com/unbound/flashbks/immigr/populate.htm>

<http://www.overpopulation.org/whypopmatters.html>

<http://www.overpopulation.org/faq/index.html>

<http://desip.igc.org/populationmaps.html>

<http://www.census.gov/ipc/www/world.html>

Note: There are multiple sites available to you in addition to these. Once you have decided which view to defend, select a search engine and enter either overpopulation, loss of natural resources, worldwide hunger or other related topics for more information.

B. Assignment: Select one of the following questions and respond in a well organized essay. Use facts and statistics from your Internet exploration to support your ideas.

1. In what ways could expanding world population impact your current life style (standard of living)?
2. What political, cultural and socioeconomic factors might impact international commitment to a worldwide plan to stabilize population or conserve resources?
3. How would stabilizing population growth help improve the quality of life?
4. Is the rapid increase of the population worldwide an issue with which you should be concerned? Why or why not?



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World Population Cartograms

Overhead 1

A cartogram is a type of map based on a scale other than a true scale. In this case, the cartogram is based on world population distribution.

1995



2030



World Population in Millions

	1995	2030	Change
The Americas	775	1,080	+39%
Europe	727	718	-1%
Africa	728	1,496	+105%
Asia	3,458	4,960	+43%



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Assessment for an Expository Piece

- | | | | |
|-----|---|-----------|-------|
| 1. | The introduction clearly states the thesis/purpose of the piece. | 10 points | _____ |
| 2. | The material included is both relevant and accurate. | 20 points | _____ |
| 3. | Each paragraph presents a main idea. | 10 points | _____ |
| 4. | Each paragraph presents relevant supporting details. | 10 points | _____ |
| 5. | The focus of the piece is maintained throughout. | 10 points | _____ |
| 6. | The transitions are smooth and logical. | 5 points | _____ |
| 7. | The material is well organized. | 10 points | _____ |
| 8. | The paper is neat and presentable. | 5 points | _____ |
| 9. | The writing is mechanically correct. | 10 points | _____ |
| 10. | The conclusion summarizes the main points in a thoughtful manner. | 10 points | _____ |

Comments:

Total Points _____



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Assessment for an Oral Report

Name of speaker: _____

Rating scale 5 high; 1 low

Presentation contains adequate and accurate information. _____

Presentation is well organized. _____

There is evidence that presentation has been practiced. _____

(If applicable) visuals are used effectively. _____

Presentation considers age, interest and prior knowledge of the listening audience. _____

Volume, pace and expression are appropriate. _____

Speaker makes eye contact with audience. _____

Comments: _____



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Assessment for a Graph

Criteria	Possible Points	Points Earned
1. There is an explanatory main title.	_____	_____
2. Starting points and intervals are appropriate.	_____	_____
3. Axes are clearly and correctly labeled.	_____	_____
4. The data is plotted correctly.	_____	_____
5. The graph is easily understood.	_____	_____
6. Space is used well.	_____	_____
7. The graph is neatly done.	_____	_____
Comments:		

Assessment for a Graph

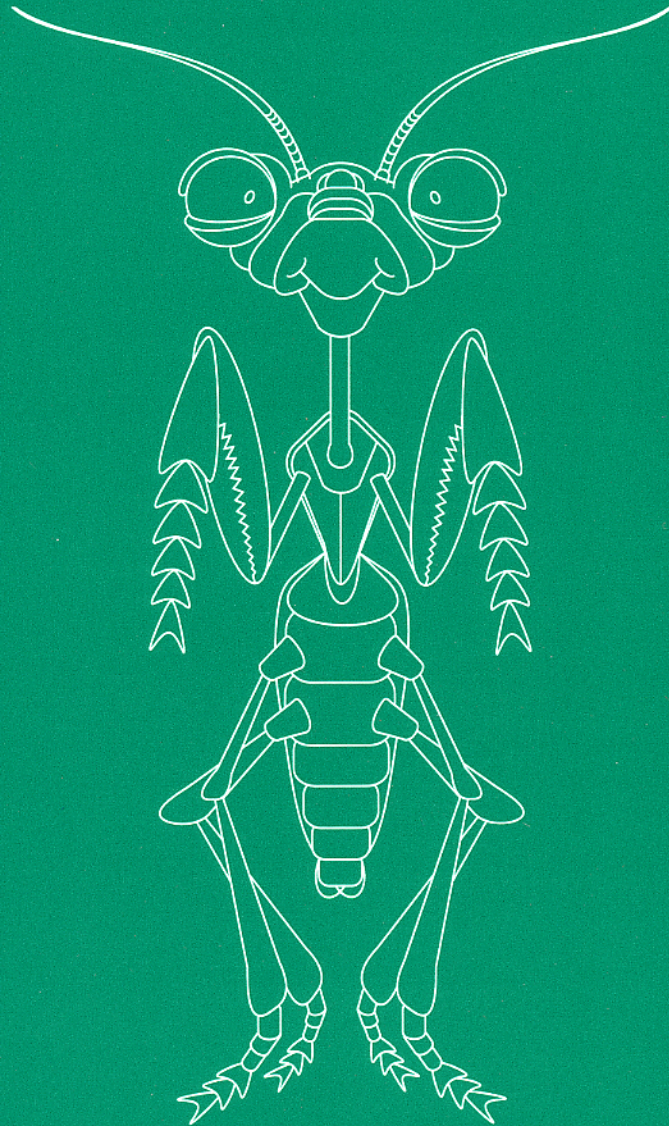
Criteria	Possible Points	Points Earned
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6. Space is used well.	_____	_____
7. The graph is neatly done.	_____	_____
Comments:		



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