

LESSON PLAN

II. Specific Objectives * Enrichment Objectives ** Remedial Objectives	Ind. #	III. Procedure A. Introduction/Motivation B. Study/Learning Activities C. Culmination D. Follow-up (Include directional statements for evaluation and any enrichment or individual activities)	IV. Materials/Resources	V. Evaluation related to objectives
		<p>A. Introduction/Motivation:</p> <ol style="list-style-type: none"> 1. Show students a globe. <ul style="list-style-type: none"> • Ask students to name the number of people living on the Earth. • Ask students if they think the future world population will be the same, increase, or decrease. 2. Demonstrate the relationship between the birth rate and death rate using water, dippers, and a clear container. <ul style="list-style-type: none"> • Fill a bucket with water and food coloring and explain that this water represents people. • Show students a clear container and explain that this container will represent the world. • Ask for two volunteers. • Hand one student a large dipper and tell him or her to dip water from the bucket and pour it into the clear container. • Hand the second student a small dipper and tell him or her to dip water from the clear container and put it back in the bucket. • Hold a class discussion about the exercise. <ul style="list-style-type: none"> ○ Ask students what they observed about the water level in the clear container representing the world. ○ Ask students why they think the water continued to rise even though water was being removed by the smaller dipper. ○ Ask students what they think this would mean if the clear container really was the earth and the water in the container really was the human population. 	<p>Blow up globe</p> <p>Bucket, water, dippers, clear container, food coloring</p>	

I. Main Ideas/Conceptual Understandings/Goals: Students will understand that an increase in population has a dramatic effect on resources.

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<p>Objective: Without resources, the student will list ways population growth would impact food supply, land use, and water consumption noting at least three impacts for each.</p> <p>Understanding</p>		<p>3. Tell the students that by the end of the lesson they will be able to correctly describe how an increase in human population would impact food supply, land use, and water consumption noting at least one consequence for each impact.</p> <p>4. Explain that learning about the impact of population growth on food supply, land use, and water consumption is important because we can change the impact based on our behavior.</p> <p>B. Study Learning</p> <ol style="list-style-type: none"> 1. Hand each student a graphic organizer and tell them they will need to use the organizer to take notes today. 2. Explain that this increase in the population has also led to an increase in the use of natural resources. 3. Tell students that there are several impacts of an increase in population on the food supply. <ul style="list-style-type: none"> • Explain that initially the food supply would increase because people would grow more crops and livestock to meet their needs. <ul style="list-style-type: none"> ○ Explain that this would especially be true for grains because people in developing countries use grains in a significant part of their diet including cornmeal, rice, oats, and flour for breads. Health Integration • Explain that sometimes the population grows at a faster rate than it can add to the food supply. <ul style="list-style-type: none"> ○ Explain that this inability of the food supply to meet the needs of the population is one factor in determining if an area is overpopulated. ○ Explain that there is often overpopulation in developing countries like those found in Africa or South America due to an inability to produce foods like grains. Health Integration 	<p>Graphic Organizer: Attachment 1</p>	

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		<ul style="list-style-type: none"> • Explain that when populations in developing countries grow water sources tend to get contaminated with bodily waste decreasing even further the amount of water humans have to drink. • Explain that fresh water is also used for farming crops like those found in the grain group and if this water is contaminated it can poorly affect growth of the crops. • Explain that human population growth can also contaminate salt water. <ul style="list-style-type: none"> ○ Explain that with an increase in the human population there is a need for more and more oil and that this oil is often transported across the ocean. <ul style="list-style-type: none"> ➤ Explain that this increases the chance of pollution such as oil spills happening. ➤ Explain that the pollution will then affect ocean life. <p>6. (Guided Practice) Tell students that they will now participate in an activity that will illustrate how population growth affects land use and food supply.</p> <ul style="list-style-type: none"> • Have students move their desks so there is an empty space in the middle. • Tell two of the students to move into the empty space. • Explain that at this initial population they will have a bag of popcorn to eat. • Tell two more students to enter the space. • Explain that the population has now doubled and that they now have to move and use only half the room for housing and that they now only have one bag of popcorn to eat. 	<p>Popcorn</p>	

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		<ul style="list-style-type: none"> • Keep doubling the population until every student is inside the space with only one bag of popcorn. • Discuss the exercise with students. <ul style="list-style-type: none"> ○ Ask students why they had to move into smaller and smaller parts of the room when their population doubled. ○ Ask students why the amount of popcorn they had to eat was cut in half every time their population doubled. ○ Ask students to connect this to population growth, land use, and the food supply in the real world. <p>7. (Independent Practice) Tell students that they will estimate the U.S. population growth in one hour based on the current population, birth rate, and death rate. Math Integration</p> <ul style="list-style-type: none"> • Explain that the current population grows by one birth every 8 seconds and decreases by one death every 12 seconds. • Explain that they should add the number of births first and then they should subtract the number of deaths. • Tell students they should then estimate the amount of grains and water this increase in population would need. <ul style="list-style-type: none"> ○ Average grain consumption is 736 pounds per person and water consumption is 90 gallons per day per person. 		

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		<p>C. Culmination</p> <ol style="list-style-type: none"> 1. Tell student that they will be playing a game of thumbs up or thumbs down with facts about the effect of population growth on food supply, water, and land use. <ul style="list-style-type: none"> • Tell students that they should give you thumbs up if the facts you read are true and thumbs down if the facts you read are false. 2. Ask students to tell you thing they thought were interesting about the effect of population growth. <p>D. Follow Up</p> <ol style="list-style-type: none"> 1. Hand each student a blank piece of paper. 2. Tell students that they will use the information they got today to write a paragraph about population growth. 3. Explain that the paragraph should describe impacts of population growth on land use, food supply, and water consumption and at least one consequence for each impact. 4. Tell students that when they are done they should bring their assignment and place it in the work folder. 5. Grade the assignment according to the checklist. 6. Tell students that their homework for the night is to research populations of fifty years ago, current population, and what scientists say the population will be in forty years. 	<p>Checklist: Attachment 2</p>	<p>Grade the assignment according to the checklist making sure that they correctly describe the effect of population growth on food supply, land use, and water consumption as well as consequences for each impact.</p>