GOOD NEWS, BAD NEWS

introduction

Food availability is an issue we get conflicting information about from the media. Depending on what you read or hear at any one time, the situation may seem to be moving in either a positive or negative direction. But one thing is clear – a growing population requires more food and world population is expected to exceed 10 billion by 2100. In addition to more people, increasing global affluence means people the world over expect a wide variety of foods, whether grown near or far and whether in or out of season. Simultaneously, however, food insecurity abounds in some parts of the world with a reported 10 percent of the population suffering from chronic hunger in 2020.

In order to address the very real issues at the intersection of hunger, food production methods, and global population growth, students must be able to evaluate different information and draw their own conclusions about how to combat these problems.

materials

Part 1

Statements Sheet (provided)

Part 2

- Research Guide (provided)
- Action Plan Guide (provided)
- Project Rubric (provided)

Part 1: Good News? Bad News?

procedure

- 1. Ask students to write 1-2 paragraphs responding to the following questions:
 - a. Are we able to feed everyone on the planet today?
 - b. With modern technological know-how, will the world succeed in feeding its growing population in the future?
 - c. What information leads you to draw this conclusion?
- 2. Ask a few students to share their responses.



concept

When studying global issues such as population growth and food availability, we must refer to a number of data resources to get a clear picture of the situation and develop effective action plans.

objectives

Students will be able to:

- Critique statistics related to population and food to determine if they are good news or bad news for food security.
- Compare food production and consumption trends in the U.S. and Canada with the rest of the world.
- Identify one cause of a food system problem and design an action plan to address it.
- Evaluate their action plan for potential obstacles and strategize how to address them.

subjects

AP Human Geography, Geography, Environmental Science (General and AP), English Language Arts

skills

Comparing and evaluating, critical thinking, researching, creating an evidence based action plan

method

Students decide whether given statements on population growth and food issues are "good news" or "bad news" and design an action plan for a food issue of their choosing.

- 3. Divide the class into groups of 3-4 students and distribute a Statements Sheet to each student. Ask each group to evaluate and categorize the listed facts about food issues as "good news" or "bad news" by placing a check mark in the appropriate column next to each statement. For any facts that their group cannot agree on, they should record their own opinion and place a star next to that row.
- 4. After students have evaluated and rated the statements in their small groups, have them create larger groups (6-8 students) which include as many new people as possible. These larger groups should discuss any of the statements that students starred in their small group discussions and see if they can come to an agreement on whether these statements are "good news" or "bad news." Any statements that individuals within these larger groups continue to disagree on should be circled or noted in some way.

discussion questions

1. Were there any statements that your group could not agree on? If so, what were they? Why do you think your group could not come to an agreement on these statements?

Answers will vary. Disagreements may arise due to students' different interpretations of the statements. For example, the fact that roughly 30 percent of food grown globally is lost to waste could be seen as a negative to some students, but as a sign of good news for students who view the food waste problem as something that can be solved (e.g. if that food is no longer wasted, it can be used to feed more people).

2. Did you change your mind about any of the ratings after discussing the statements with others? Explain.

Answers will vary.

3. Overall, do these statements make you feel optimistic or pessimistic about our ability to feed the growing global population? Why do you feel this way?

Answers will vary.

4. After reading these statements, what other information would you want to know to get a better understanding of food and hunger issues? Explain.

Answers will vary.

5. Many of the statements pertain to food issues in the U.S. and Canada. Looking at those statements, what, if any conclusions can you draw about how food and hunger trends in these countries might differ from other parts of the world?

Answers will vary. Students might note some higher food consumption/meat consumption trends and more carbon dioxide emissions per capita from the U.S. and Canada. At the same time, both wealthy countries have significant portions of their population that experience food insecurity.

Part 2: Food System Action Project

procedure

- 1. Have students return to their original small group and explain that in their groups, they will conduct research to evaluate the prospects for positive solutions to the population/food dilemma.
- 2. Have groups choose one statement from the Statements Sheet that they all agreed was "bad news." Students should use a variety of resources to research how their chosen issue affects public health, their community, and/or the environment. Distribute a Research Guide to each student. They will complete the Guide as a way to organize the information they find.

Suggested Resources:

Feeding America - www.feedingamerica.org/

Food and Agricultural Organization (FAO) of the United Nations - www.fao.org

Intergovernmental Panel on Climate Change - www.ipcc.ch

National Center for Health Statistics - www.cdc.gov/nchs/index.htm

Organisation for Economic Co-operation and Development - www.oecd.org

Population Reference Bureau - www.prb.org

U.S. Agency for International Development – www.usaid.gov

United Nations Environment Programme - www.unep.org

World Fact Book - <u>www.cia.gov/the-world-factbook/</u>

World Food Programme - www.wfp.org/

World Health Organization - www.who.int/en

- 3. When the Research Guide is complete, groups should select one cause of their issue to address with an action plan. Using their completed research, the group will complete the Action Plan Guide and by doing so, design a project that includes:
 - an achievable goal (encourage students to keep it realistic)
 - specific action steps
 - how the effects of the project will be measured
 - ally organizations or groups who could help implement the project
 - potential barriers to this project being implemented in the real world (including identifying groups in opposition to the project) and how these barriers could be overcome
- 4. Have each group share what they learned through a class presentation. Students can use their completed Guides and the presentation checklist laid out on the Project Rubric to help them successfully organize and give this presentation.

assessment

Use the Project Rubric to evaluate the group's ability to identify the causes and effects of their chosen "bad news" issue, as well as a realistic project action plan.

follow-up activities

- 1. After all of the groups make their presentations on project ideas, take a class vote to decide which idea to implement as a class-wide project, and use the Action Plan Guide to make it happen.
- 2. The World Food Programme (a United Nations agency) releases an annual Hunger Map, showing the prevalence of undernutrition in every country. Have students examine the <u>latest Hunger Map</u> and select a country that has a 15 percent or higher incidence of chronic hunger (coded orange or red) and investigate the particular food challenges in that country. Organizations listed on page 3 of this activity provide a good starting point. Ask students to write 1-2 paragraphs describing the country's food situation.
- 3. UN Sustainable Development Goal (SDG) #2 is to "End hunger, achieve food security and improved nutrition and promote sustainable agriculture." The 17 SDGs are all interrelated and many of them, not specifically about food and hunger, do relate to SDG #2. Share the <u>SDG website</u> with students and lead a class discussion on which of the other SDGs would also impact achieving SDG #2.

Part 1 adapted with permission from University of Denver Center for Teaching International Relations. The original activity, "Good News Bad News," appeared in Teaching About Population Issues by George Otero, Jr. and Richard Schweissing, Center for Teaching International Relations, University of Denver, CO 1977.

Part 2 adapted with permission from the FoodSpan curriculum from Johns Hopkins Bloomberg School of Public Health, Center for a Livable Future.

GOOD NEWS, BAD NEWS | statements sheet

GOOD NEWS	BAD NEWS		STATEMENTS
		1.	The world today produces enough food to feed everyone. (FAO)
		2.	As the global population and incomes grow across the developing world, overall food demand is on course to increase by more than 50 percent, and demand for animal-based foods by nearly 70 percent, by 2050. (World Resources Institute)
		3.	There are economic benefits to investing in family planning. Every dollar spent on contraceptive services in developing regions saves \$2.20 (USD) in maternal and newborn healthcare. (Guttmacher Institute)
		4.	From field to fork, the average U.S. dinner travels 1,500 miles. (Michael Pollan, The Omnivore's Dilemma, 2016)
		5.	As the world's temperatures continue to rise, much of the new climatically suitable land for growing major crops will be in Canada. (CBC News)
		6.	The United States and Canada, with just under 5 percent of the world's population, are responsible for 43 percent of the excess carbon dioxide that is heating the planet. (The Lancet Planetary Health)
		7.	Roughly 30 percent of food grown globally is lost or wasted every year. (UNEP)
		8.	About one-third of U.S. corn production is being used to create fuel. (USDA)
		9.	Aquaculture (fish farming) now represents nearly half of all global fish production. (FAO)
		10.	About 1 in 8 people in the U.S. participated in a food assistance program in 2019. Food assistance accounts for two-thirds of the USDA's budget. (USDA)
		11.	About 4 percent of the world's agricultural land and 3-4 percent of its fresh water are used to grow biofuels. (University of Virginia)
		12.	U.S. cropland is eroding at least 10 times faster than the time it takes lost soil to be replaced. (Cornell University)
		13.	U.S. farms and ranches sold nearly \$7.6 billion in certified organic goods in 2016, more than double the \$3.5 billion in sales in 2011. (Pew Research Center)
		14.	Globally, there is more than enough water to meet all of humanity's needs, but there isn't always enough in every place where and when it is needed. (University of Twente, Netherlands)

GOOD NEWS	STATEMENTS		
		15.	From 2001-2016, 11 million acres of agricultural land were paved over, fragmented, or converted to uses that jeopardize agriculture. (American Farmland Trust)
		16.	About 45 percent of deaths among children under 5 years of age are linked to undernutrition. These mostly occur in low- and middle-income countries. (WHO)
		17.	Moderate or severe food insecurity affects over 30 percent of the world population, and it has been increasing since 2014. Though most prevalent in lower income countries, about 1 in 10 U.S. households and 1 in 8 Canadian households were considered "food insecure" in 2020. (FAO; USDA; Statistics Canada)
		18.	Per capita consumption of red meat in the U.S. is about four times the world average and greater than most other wealthy countries. (OECD)
		19.	A 2015 Nielsen global online study of 30,000 consumers in 60 countries found that 66 percent are willing to pay more for sustainably produced goods. (Nielsen)
		20.	Over the last half-century, new fishing technologies and on-ship refrigeration techniques have enabled fishers to bring in their catch more efficiently and from more distant waters. (NJ Department of Agriculture)
		21.	The world is not on track to end world hunger by 2030, one of the UN Sustainable Development Goals. (United Nations)
		22.	Two-thirds of U.S. cereal production is fed to livestock. (University of Minnesota Institute on the Environment)
		23.	Fertilizers replenish the soil by replacing essential nutrients taken up during plant growth. (The Fertilizer Institute)
		24.	Reducing heavy red meat consumption would reduce per capita food and land use- related greenhouse gas emissions 15-35 percent by 2050. Going vegetarian could reduce those per capita emissions by half. (World Resources Institute)
		25.	While using industrial fertilizers has increased yields, these crops are often nutritionally inferior to the same varieties grown organically. (Michael Pollan, In Defense of Food: An Eater's Manifesto, 2008)
		26.	Infant mortality rates are dropping in almost every country in the world. (WHO)
		27.	Global water demand will increase by 20-30 percent by 2050. About 70 percent of global water use is for agriculture (irrigation, livestock and aquaculture). (UNESCO)
		28.	Global average life expectancy increased by 5.2 years between 2000 and 2019, the fastest increase since the 1960s. (WHO; UNFPA)

GOOD BAD NEWS NEWS			STATEMENTS		
		29.	In 2018, 73 percent of U.S. adults and 63 percent of Canadian adults were overweight or obese. (CDC; Statistics Canada)		
	30.		The soil in many tropical areas is very poor and erodes easily. (NASA)		
		31.	In 2020, there were more than 20,000 desalination plants around the world in 183 countries. (International Desalination Association)		
		32.	The Amazon Rainforest lost over 2 million hectares in 2020, an area larger than Israel. Much of the cleared land is being used for farming and cattle ranching. (Monitoring of the Andean Amazon Project; Mongabay)		
		33.	Many widely used pesticides and herbicides are toxic. The runoff of these chemicals can contaminate groundwater and endanger wildlife. (Journal of Interdisciplinary Toxicology)		
		34.	More than 90 percent of corn grown in the U.S. (and 80 percent in Canada) are from genetically modified seeds. (USDA; Canadian Biotechnology Action Network)		
		35.	Cropland expansion will most likely come at the expense of rangeland, forests, wetlands, and other areas that are both economically important and ecologically fragile. (Joshua Lawler, et.al., PNAS)		
		36.	Genetically modified (GM) crops boast advantages, including pest and disease resistance, and are able to tolerate more extreme temperatures. (FAO)		
		37.	Family farms occupy 70-80 percent of the world's farmland and produce 80 percent of the world's food. (FAO)		
		38.	The rate of stunting (children too short for their age as a result of malnutrition) fell from 33 percent of children under age 5 in 2000 to 21 percent in 2019. (FAO)		
		39.	"Golden rice," a newly developed GM strain of rice with increased iron and vitamin levels, may soon be on the world market, and could significantly reduce cases of child blindness. (International Rice Research Institute, Philippines)		
		40.	About 19 million people in the U.S. live in "food deserts," defined by the USDA as a place where least one-third of the population lives more than a mile from a supermarket in urban areas, and more than 10 miles from a supermarket in rural areas. (USDA)		
		41.	In 2018, 8 percent of U.S. consumers and nearly 10 percent of Canadian consumers identified as vegetarian or vegan. (Gallup; CTV News-Dalhousie University Study)		
		42.	Soil salinization, especially on irrigated land, is a major factor contributing to the loss of productivity of cultivated soils. It was estimated that about 20 percent of irrigated land, producing one-third of the world's food, is salt-affected. (The University of Évora, Portugal)		

GOOD NEWS	BAD NEWS	STATEMENTS
		43. As of 2015, over 7,000 farms in the United States sold products directly to consumers through community supported agriculture (CSA) agreements. (USDA)
		44. The Intergovernmental Panel on Climate Change (IPCC) projects with "high confidence" that more regions will be affected by increases in agricultural and ecological droughts with increasing global warming. (IPCC)
		45. Studies have shown that higher concentrations of atmospheric carbon dioxide affect crops in two important ways: they boost yields by increasing the rate of photosynthesis, which spurs growth, and they reduce the amount of water crops lose through transpiration. (NASA)
		46. In 2017, scientists predicted that a mere 10-20 centimeters of sea-level rise, which is expected to happen by 2050, will more than double the frequency of serious flooding events in many parts of the globe. (Scientific Reports)
		47. Researchers found that drought and extreme heat reduced global crop yields by as much as 10 percent between 1964 and 2007. (McGill University)
		48. Fewer than 1 in 10 children and adults in the U.S. eat the recommended amount of vegetables. (CDC)
		49. In 1990, small and medium-sized farms accounted for nearly half of all agricultural production in the U.S. Now it is less than one-fourth. (The Guardian)
		50. Women comprise about half the worldwide agricultural labor force but have limited access to land, markets and education compared to men, and are not equally involved in decision-making. If women had the same access to productive resources as men, they could increase yields on their farms by 20-30 percent, potentially resulting in 100-150 million fewer hungry people in the world. (FAO)

Organization acronyms:

CDC: Center for Disease Control and Prevention

FAO: Food and Agriculture Organization of the United Nations

IPCC: Intergovernmental Panel on Climate Change

NASA: National Aeronautics and Space Administration

OECD: Organisation for Economic Co-operation and Development

PNAS: Proceedings of the National Academy of Sciences

UNEP: United Nations Environment Programme

UNFPA: United Nations Population Fund

UNESCO: United Nations Education, Scientific and Cultural Organization

USDA: U.S. Department of Agriculture WHO: World Health Organization

GOOD NEWS, BAD NEWS | research guide

Name:	Date:
Topic:	
After your group chooses an iss	sue statement, use the following organizer to help guide your research of the topic. ormation source(s) in each section!
Issue Statement	
Cause(s) of this Issue	
	Source(s):
Potential (or Current) Negative Effects of Issue on Public Health, Your Community, and/or the Enviroment	
	Source(s):
Groups or Organizations Currently Working to Solve this Issue (Potential Allies)	
	Source(s):
Current Solutions Being Tried and Their Effectiveness	
	Source(s):
Potential Barriers to this Issue Being Solved	
	Source(s):

GOOD NEWS, BAD NEWS | sample research guide

Issue Statement	Moderate or severe food insecurity affects over 30 percent of the world population, and it has been increasing since 2014. Though most prevalent in lower income countries, about 1 in 10 U.S. households and 1 in 8 Canadian households were considered "food insecure" in 2020.		
Cause(s) of the Issue	-Lack of sufficient household money for food needsLack of sufficient government funds (local, state/province or national) to support programs that provide food aid -Drought leading to lack of available food -Inaccessibility of nutritious food (e.g. food deserts) Source(s): WHO, OECD, Feeding America		
Potential (or Current) Negative Effects of Issue on Public Health, Your Community, and/or the Environment	Clear negative effects for public health and society: -Preventable death of children -Potential for smaller adult size if child survives -Potential for reduced intellectual ability if child survives -Potential for limited economic productivity if child reaches adulthood -Potential for future metabolic and cardiovascular disease, general weakness/sickness Source(s): The Lancet; European Commission		
Groups or Organizations Currently Working to Solve this Issue (Potential Allies)	-World Health Organization -U.S. Agency for International Development -UN Population Fund -UNICEF -Bread for the World -Oxfam -Food Banks Canada -Feeding America		

Current Solutions Being Tried and Their Effectiveness

Globally:

- -Increasing access to primary health care for families
- -Empowering and educating women
- -Expanding agriculture/agro-biodiversity
- -Expanding and supporting livestock/clean water programs

Effectiveness: These initiatives are effective but are not currently funded at the levels they need to be to address all of the need that exists

In the U.S.:

- -SNAP/Food stamps, helped reach 40 million low-income Americans 2020
- -National School Lunch Program in 2019 fed 30 million children
- -WIC (Special Supplemental Nutrition Program for Women, Infants and Children)

Effectiveness: These programs are effective, but don't address all need; also a need for nutrition education

In Canada:

- -Food Banks Canada 1.1 million visits to food banks in 2019
- -Establishment of a Canada Food Policy Advisory Council to create and implement a Food Policy for Canada, aligned with the SDGs

Effectiveness: Food Policy for Canada just launched in 2019. Food banks might not be meeting all needs.

Source(s): World Hunger Education Service; USDA; Food Banks Canada; Government of Canada

Potential Barriers to this Issue Being Solved

- -Lack of money and grants to support work
- -Lack of political will to expand funding
- -Lack of awareness of severity of the issue, especially that it exists in developed countries
- -COVID-19 pandemic has likely exacerbated the problems

Source(s): UNFPA; World Hunger Education Service

Student Project Ideas

Focus on what we can do domestically to combat food insecurity.

- 1. Raise awareness within the school about food insecurity in the U.S./Canada and in the local community by sharing facts at a school assembly.
- 2. Create a fundraiser for a hunger-relief organization (e.g. Feeding America or Community Food Centres Canada).
- 3. Host a food drive to support a local food pantry.

GOOD NEWS, BAD NEWS | action plan guide

Name:	Date:
Use the chart below to group can do in your co	help plan your project. Remember – try to come up with something that you and your ommunity!
Issue	
Cause You Will Address	
Project Goal (Keep it realistic!)	
How Project Will Be Implemented (List the specific steps you will take)	
How Project Success Will Be Measured (How will you know this has worked?)	
Ally Organizations, Groups, or People (Who will help you do this?)	
Potential Barriers to Implementation of Project and Plan to Address Them	

GOOD NEWS, BAD NEWS | sample action plan guide

Issue	Undernutrition of children (focusing on issue in U.S.)				
Cause You Will Address	Lack of money to support programs that provide food aid.				
Project Goal (Keep it realistic!)	Raise \$100 to donate to <i>Feeding America</i> , the largest domestic hunger-relief organization in the United States and increase awareness about this issue at our school.				
How Project Will Be Implemented (List the specific steps you will take)	 Talk to the principal about speaking at the next assembly about this issue. Find a teacher who interested students can give their donations to. Create a fact sheet to share with other students so that they can learn about this issue. Present at assembly and let students know how and where to donate money. Hand out fact sheets at the next sporting event, these will also let students know how to donate. Send \$100 raised to Feeding America once goal is met! 				
How Project Success Will Be Measured (How will you know this has worked?)	We will know we are successful when we have raised \$100 to combat this issue in the U.S. and when we've gotten the chance to raise awareness about this issue among our classmates at school events.				
Ally Organizations, Groups, or People (Who will help you do this?)					
Potential Barriers to Implementation of Project and Plan to Address Them	Potential Barrier: Students might not donate to the fundraiser because they don't think undernutrition is an issue in the U.S. Solution: Make sure to educate them before we ask them to donate – answer any questions that they have about the issue. Potential Barrier: Money that's donated might not be safe – someone could take it. Solution: Make sure that the teacher we work with stores the money safely until we're ready to donate it.				

GOOD NEWS, BAD NEWS | project rubric

Name:	Date:)ate:	
Topic:			

In order to be ready for your group's presentation, each group member should agree to speak about one or two of the following components:

- Introduction to the issue your group identified and researched.
- Information about how issue affects public health, community, and/or the environment.
- Information about factors that contribute to this issue.
- Realistic, actionable project addressing one of the factors identified.
- Closing statements or thoughts.

Use your completed Research Guide and Planning Guide to address your component(s) of the presentation.

RUBRIC	Basic	Emerging	Proficient	Exceeds	
Scoring	1	2	3	4	
Use of Class Time How well did you use your work time?	Group member is frequently off task and needs a significant amount of reminders to get back to work.	Group member is sometimes off task and needs multiple reminders to get back to work.	Group member is on task the majority of the time and helps other members with minimal reminders.	Group member is on task the entire time and helps other members without being asked.	
Task Leadership Did you assist with both of the major project tasks?	Group member needs several reminders to assist with research task OR does nothing to help the group complete the project.	Group member needs multiple reminders, but plays main role in researching at least one major area of the project.	Group member plays main role in researching at least one major area of the project.	Group member plays main role in researching more than one major area of the project.	
Project Completion Did your group satisfactorily complete the Research Guide and Project Planning Guide?	Two or more major parts of the guides were completed satisfactorily. The proposed project is unrealistic or unactionable.	At least three major parts of the guides were completed satisfactorily. The proposed project is not fully explained or is unrealistic.	All major parts of the guides were completed satisfactorily. The proposed project is realistic, actionable, and fully explained.	All major parts of the guides were completed satisfactorily. The proposed project is realistic, actionable, and fully explained. Group members actually implement the project.	
Presentation What was your group's presentation like?	Only one group member spoke and the information presented was incomplete and/ or not presented in a coherent sequence.	At least two group members spoke but information was not presented in a coherent sequence.	The majority of group members spoke and all required information was presented in a mostly coherent sequence.	All group members spoke, information was presented in a coherent sequence, and implementation of project was described in detail.	

TOTAL SCORE: ____/16