FOOD SAFETY FOR LIFE

FOOD SAFETY FOR LEARNING, FOOD SAFETY FOR LIFE

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Social Studies

HANDS ON

Real-World Lessons for Middle School Classrooms

Approved by

UTIA INSTITUTE OF AGRICULTURE THE UNIVERSITY OF TENNESSEE Real. Life. Solutions.

GMA Science and Education Foundation

IFT feeding the minds that feed the world

USDA United States Department of Agriculture

SOCIAL STUDIES

Summary of Activities:

Setting the Stage

Word Splash Predictions

Foodborne Illnesses: Risks and Prevention

Word Splash Statements of Fact

Bacteria that Cause Foodborne Illnesses

What's the Cause?

Student Reflection

Researching Foodborne Outbreaks

Foodborne Illness Outbreak Maps

Map Self-Assessment

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Day	Social Studies Standards	
Day 1	CC SL 7.1	Engage effectively in a range of collaborative discussions (one-on-one, in groups and teacher –led) with diverse partners on grade 7 topics, texts, and issues, building on others' ideas and expressing their own clearly.
	CC L 7.4d	Verify the preliminary determination of the meaning of a word or phrase (e.g., by checking the inferred meaning in context or in a dictionary).
Day 2	7G.2.1	Describe local community characteristics, including opportunities for employment and education as well as the availability of resources.
	CC RI 7.4	Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings; analyze the impact of specific word choices on meaning and tone, including analogies or allusions to other texts.
	CC L 7.4c	Consult general and specialized reference materials (e.g., dictionaries, glossaries, thesauruses), both print and digital, to find the pronunciation of a word or determine or clarify its precise meaning or its part of speech.
Day 3	CC RI 7.1	Cite the textual evidence that most strongly supports an analysis of what the text says explicitly as well as inferences drawn from the text.
Day 4 and 5	7G.2.1	Describe local community characteristics, including opportunities for employment and education as well as the availability of resources.
	7G.1.3	Describe the local community in spatial terms using urban and rural land-use patterns.
	7G.1.1	Describe the local community in spatial terms using maps.
	7G.5.1	List the continents that make up the Eastern Hemisphere.
	CC W 7.7	Conduct short research projects to answer a question, drawing on several sources and generating additional related, focused questions for further research and investigation.
	CC W 7.8	Gather relevant information from multiple print and digital sources, using search terms effectively; assess the credibility and accuracy of each source; and quote or paraphrase the data and conclusions of others while avoiding plagiarism and following a standard format for citation.
Day 6	CC SL 7.4	Present claims and findings, emphasizing salient points in a focused, coherent manner with relevant evidence, sound valid reasoning, and well-chosen details; use appropriate eye contact, adequate volume, and clear pronunciation.
	CC SL 7.5	Include multimedia components and visual displays in presentations to clarify claims and findings and emphasize salient points.

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Robert Gagne's Nine Events of Effective Instruction-Social Studies

Stage of Instruction	Event	Description	Social Studies Activity
Pre-Instruction	Gaining Attention	Stimulates readiness to learn and participate. Stimuli like surprises or questions are typically used for this event.	Setting the Stage
	Informing learners of the objectives	Generates expectancy by helping them understand what they will be learning	Inform learners of the objectives
	Stimulating recall of prior learning	Relating new information to something they already know or have experienced helps learners make sense of the lesson	Word Splash Predictions
Instruction	Presenting the stimulus	New information is presented. Strategies like providing examples or presenting vocabulary should be used to present the lesson content to provide more effective instruction	Foodborne Illness PowerPoint
	Providing learning guidance	Helps facilitate the process of long-term information storage	Word Splash Statements of Fact
	Eliciting performance	Requires the learner to practice the new skill or behavior. The repetition further increases the likelihood of retention of the new information	Bacteria that Cause Foodborne Illnesses
Post-Instruction	Providing feedback	Assess and further facilitate learning. Typically, activities designed for feedback are for comprehension, not scoring	What's the Cause?
	Assessing performance	To evaluate the effectiveness of the instructional events, you must test to see if the expected learning outcomes have been achieved	Student Reflection
	Enhancing retention and transfer	Helps learners develop expertise by internalizing the new information. Methods for helping learners internalize are paraphrasing, generating examples, creating concept maps or outlines, and repetition	Researching Foodborne Outbreaks Creating Foodborne Illness Outbreak Maps

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Unit Activities:	Setting the stage, Objectives, Word Splash Predictions, Foodborne Illness PowerPoint	*Learning Objectives:*	Students will be able to: 1. Identify and recognize characteristics and symptoms of Foodborne Illnesses 2. Connect prior knowledge of symptoms and causes of Foodborne Illnesses to relevant vocabulary
Instructional Events:	Gain Attention, Inform Learners of the Objectives, Stimulate Recall of Prior Learning, Present the Stimulus		
Materials:	Foodborne Illness PowerPoint		
Student Handouts:	Word Splash (pg. SS6) Foodborne Illnesses Risks and Prevention (pg. SS11)	*Content Standards:*	CC SL 7.1 CC L 7.4d

Activities:

Setting the Stage (7 minutes)

Purpose: To capture and prepare students to learn and participate.

- Write the following question on the board or overhead: **Has anyone in your family (yourself included) ever become sick as a result of food poisoning? Explain what they ate, how long they were sick, and what medical treatment, if any, they required to feel better.**
    - Ask student to write down their responses to the question. Allow 3-5 minutes for students to do so.
    - Allow students to share their responses with the class.
    - Pose questions for discussion:
        - Why do you think certain foods caused foodborne illnesses?
        - What do you think could have been done to avoid getting sick?
    - Explain to students that food poisoning results from bacteria which grows in food that is mishandled.

Inform the Learner of the Objectives (3 minutes)

Purpose: To help students understand what they are responsible for learning.

- Tell Students: **In this unit we are going to learn what causes foodborne illnesses, how to prevent them, and the possible outcomes of mishandling foods.**

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Activities:	*Purpose: To familiarize students with new words, activate prior knowledge, and provide a guide to the concepts they will learn in this lesson.* • Ask each student to share the relation of their word with the class. • Record student responses of "predictions" on the board. • Remind students that they will use their word later in the lesson to create Statements of Fact.
Foodborne Illness PowerPoint (30 minutes)	*Purpose: To provide new information to students.*

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WordSplash

Use the words above to describe Foodborne Illness in predictions and statement of facts sentences below.

Student Predictions:
Example: Foodborne Illnesses are caused by bacteria.

Statements of Fact:

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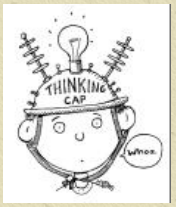
Foodborne Illness

Risks and Prevention

USDA NIFSI Food Safety in the Classroom©
University of Tennessee, Knoxville 2006

Preview Question

- What are three things you already know about foodborne illness?

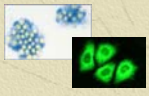


USDA NIFSI Food Safety in the Classroom©
University of Tennessee, Knoxville 2006

What is Foodborne Illness?

- Any illness that humans get from food.
- Can be caused by bacteria, viruses, parasites, or toxins (poisons)

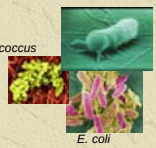
Parasites like this tapeworm can make you sick.



Hepatitis and Norwalk viruses can cause foodborne illnesses.

Salmonella

Staphylococcus aureus



E. coli O157:H7

These bacteria can contaminate foods.

USDA NIFSI Food Safety in the Classroom©
University of Tennessee, Knoxville 2006

A Closer Look: Bacteria

Salmonella

Staphylococcus aureus

E. Coli O157:H7

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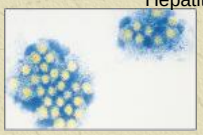
University of Tennessee, Knoxville 2006

A Closer Look: Viruses and Parasites

Hepatitis



Tapeworm

Norwalk

Hepatitis and Norwalk viruses can cause foodborne illnesses.

USDA NIFSI Food Safety in the Classroom©
University of Tennessee, Knoxville 2006

What habits lead to foodborne illness?

- The reported foodborne outbreaks from 1993-2003 were most often caused by:
  - Not keeping food hot or cold enough
  - Poor personal hygiene (not washing hands, covering mouth and nose when coughing or sneezing)
  - Not cooking or reheating food to the proper temperature
  - Cross-contamination of raw and cooked foods
  - Not cleaning equipment well

USDA NIFSI Food Safety in the Classroom©
University of Tennessee, Knoxville 2006

Review Question

- What is a foodborne illness and how are you most likely to get one?

What are the symptoms?

- Diarrhea, constipation, or stomach ache
- Headaches
- Nausea and vomiting
- Fever
- Possibly, blood in the feces
- Serious symptoms may require medical attention

How can I prevent food poisoning?

- Pay attention to cleanliness (wash hands)
- Make sure that all food is thoroughly cooked
- Refrigerate all leftovers immediately
- Separate meat and veggies when preparing foods

What are basic rules for preparing food safely?

- Wash your hands after going to the bathroom and before preparing food.
- Wash your hands when switching from one type of food to another (vegetables to meat).
- Wash kitchen utensils when switching from one type of food to another.
- Store food in the refrigerator. Don't leave meats, poultry, and fish out for a long time.

USDA NIFSI Food Safety in the Classroom©
University of Tennessee, Knoxville 2006

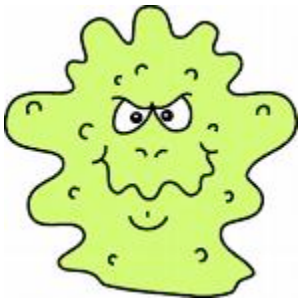
Review Question

- How can you prevent a foodborne illness?

USDA NIFSI Food Safety in the Classroom©
University of Tennessee, Knoxville 2006

Foodborne Illness

Risks and Prevention



Preview Question

- What are three things you already know about foodborne illness?

What is Foodborne Illness?

What habits lead to foodborne illness?

Review Question

- What is a foodborne illness and how are you most likely to get one?

What are the symptoms?

How can I prevent food poisoning?

What are basic rules for preparing food safely?

Review Question

- How can you prevent a foodborne illness?

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Unit Activities	Review, Word Splash Statements of Fact, Bacteria that Cause Foodborne Illness	*Learning Objectives*	Students will be able to: 1. Research and communicate characteristics of bacteria that cause Foodborne Illnesses 2. Identify symptoms of Foodborne Illnesses
Instructional Events:	Provide Learner Guidance, Elicit Performance		
Materials:	Internet or copies of information if no Internet access		
Student Handouts:	Word Splash (from Day 1) (pg. SS6) Bacteria that Cause Foodborne Illnesses (p. SS15)	*Content Standards:*	7G.2.1 CC RI 7.4 CC L 7.4c

Activities:

Review (5 minutes)

Daily Review Question: **Yesterday we learned what causes foodborne illnesses. What is one thing you learned that surprised you the most? Today we are going to focus on the three most common bacteria associated with foodborne illnesses around the world.**

Word Splash Statements of Fact (10 minutes)

Purpose: To facilitate the transfer of new knowledge to long-term retention.

Learner Level: Average-High

- Ask students to review the predictions they first made on their Word Splashes. How many were correct?
- Now ask students to write at least 5 statements of fact using words in the Word Splash. Encourage students to use 5 new words from the Word Splash.
- Discuss these as a class.

Learner Level: Low-Average

- Refer to student predictions recorded on the board from earlier.
- Discuss which predictions were correct and which were incorrect.
- Ask students to work individually or with a partner to write 5 new statements of fact.
- Encourage volunteers to share their responses. Record these responses on the board.

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Activities:

Bacteria that Cause Foodborne Illnesses (40 minutes)

Purpose: To allow the learner to practice the new knowledge. The repetition further increases the likelihood of retention of new information.

Learner Level: Average-High

- This activity introduces various foodborne pathogens.
- Distribute the **Bacteria that Cause Foodborne Illnesses** chart.
- Students may work individually or in pairs to complete the sheet.
- Direct students to the following website to complete their worksheet:

  http://www.ncagr.gov/cyber/kidswrld/foodsafe/badbug/badbug.htm (Accessible from the student section of our website: (www.handsonclassrooms.org)
- Once students have completed the worksheet, discuss their answers as a group to ensure that all students have the correct information.

Learner Level: Low or if computer access is limited

- Use the above activity with any of the following modifications:
  - Provide students with a hard copy of the website and allow them to use a highlighter to identify information needed to complete their charts.
  - Once they have identified all of the correct information, have them work individually or in pairs to transfer the information to their charts.
  - Before distributing the chart to students, fill in several of the boxes so that students are not overwhelmed by the entire chart.

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Bacteria that Cause Foodborne Illnessess

Directions: Use the internet site below to complete the following chart.
http://www.ncagr.gov/cyber/kidswrld/foodsafe/badbug/badbug.htm

Microorganisms	Onset	Symptoms	Associated Foods
Salmonella	8-12 hours after eating	Abdominal pain and diarrhea, and sometimes nausea and vomiting	Raw meats, poultry, eggs, milk and other dairy products, shrimp, frog legs, yeast, coconut, pasta and chocolate
Listeria monocytogenes	From 7-30 days after eating, but most have been reported 48-72 hours	Fever, headache, nausea, and vomiting. Primarily affects pregnant women and their fetuses.	Soft cheese, unpasteurized milk, hot dogs and deli meats, imported seafood products, frozen cooked crab meat, cooked shrimp
E.coli O157:H7	2-5 days after eating	Severe bloody diarrhea and abdominal cramps, usually little or no fever is present	Ground beef, raw milk, sprouts, lettuce, salami, unpasteurized milk and juice, and swimming in or drinking sewage-contaminated water
Campylobacter	2-5 days after eating	Diarrhea, abdominal cramping, fever, and sometimes bloody stools	Raw poultry, meat, and unpasteurized milk
Staphylococcus aureus	30 minutes-8 hours after eating	Diarrhea, vomiting, nausea, abdominal pain, cramps	Meats, poultry, egg products, tuna, potato and macaroni salads, and cream-filled pastries

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Bacteria that Cause Foodborne Illnessess

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Microorganisms	Onset	Symptoms	Associated Foods
Salmonella			
Listeria monocytogenes			
E.coli O157:H7			
Campylobacter			
Staphylococcus aureus			

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	Review, What's the Cause?, Student	*Learning Objectives*	Students will be able to: 2. understanding of the risks and foodborne illnesses.
Instructional Events:	Provide Feedback, Assessing Performance		
Handouts:	What's the Cause? (pg. SS18)		
		Content Standards:	CC RI 7.1
Activities:			
Review:	Daily Review Question: **Yesterday we studied the most common bacteria associated with foodborne illnesses. What types of foods were most often mentioned? Today we are going to research recent outbreaks of foodborne illnesses around the world.**		
What's the Cause? *(20 minutes)*	*Purpose: To assess and facilitate further student learning* ***Learner Level: All*** • Distribute the **What's the Cause** worksheet to students. • Students should work individually to determine which foodborne pathogen is responsible for the illness described in each scenario based on the knowledge they gained from the Internet Activity. • Discuss answers as a class and ask students to defend their responses.		
Student Reflection	*Purpose: To determine if students are successfully meeting the learning objectives for this lesson.* ***Learner Level: All*** • Ask students to consider all they have learned so far about foodborne pathogens and foodborne illnesses. • Have each student write: o 3 examples of foodborne bacteria that make you sick. o 2 ways to prevent foodborne illness. 1 thing they will tell their parents about foodborne illness tonight. • Encourage students to share their responses with the class.		

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Teacher's Copy

WHAT'S THE CAUSE?

Directions: Using the Food Pathogen Internet Activity Sheet, determine which organism caused the following illnesses:

*Campylobacter jejuni* 1. John's mom was in a hurry, so she cooked the chicken until it looked done, cut it, and made chicken salad; but she forgot to refrigerate it. Later that day, John had seconds of the chicken salad. Three days later he developed a fever, muscle pain, and watery diarrhea.

*E. coli* O157:H7 2. Sherry and her family had a cookout at the park. Her father grilled some hamburgers and everyone ate and started playing. Two days later, Sherry started having abdominal cramps and developed bloody diarrhea but had no fever.

*Salmonella* 3. Mia's mother bought her a chocolate bar for being so good at the doctor's office. The next day, she began to have abdominal pain and had diarrhea.

*Salmonella* 4. Katie and her mom mixed milk, sugar, whipping cream, vanilla, and eggs with ice to make homemade ice cream. Twelve hours later, they both had diarrhea, nausea, and abdominal pain.

*Listeria monocytogenes* 5. Joe bought a deli meat sandwich from the grocery store. A few days later, he had a headache, fever, and then started vomiting.

*E. coli* O157:H7 6. Thomas and his grandfather bought unpasteurized apple juice from a roadside fruit stand. Three days later he had a severe stomach ache and bloody diarrhea.

*Staphylococcus aureus* 7. David ate potato salad at his family picnic. One hour later he began having severe vomiting and diarrhea.

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Unit Activities:	Review, Research Foodborne Illness Outbreaks	*Learning Objectives:*	Students will be able to: 1. Demonstrate proficient research skills by locating and evaluating a variety of teacher selected non-fiction 2. Understand the relationship between specific standard of living measures and the quality of life in a particular country 3. Critically analyze connections between standards of living and foodborne illnesses. 4. Identify credible sources of electronic information.
Instructional Events:	Enhance Retention and Transfer		
Materials:	Internet access, computers		
Student Handouts:	Researching Foodborne Illnesses Worksheet (pg. SS22)	*Content Standards:*	7G.2.1 7G.1.3 7G.1.1 7G.5.1 CC W 7.7 CC W 7.8

Activities:

Review (5 minutes)

Daily Review Question**: Yesterday we started researching outbreaks of foodborne illnesses around the world. What are some countries in which you found recent outbreaks? Today you are going to complete your research and begin creating a map to illustrate your findings.**

Researching Foodborne Outbreaks: (50 minutes)

Purpose: To allow students to develop expertise with the new information and create a construct for transferring knowledge to long-term retentions.

Learner Level: Average-High

- Distribute the **Researching Foodborne Illnesses** worksheet to each student.
- Students will use the website: http://www.foodhaccp.com/outbreak.htm to find five major outbreaks of foodborne illnesses with five different organisms around the world since 2002. It is important that students realize that foodborne illness is a current problem.
- The outbreaks must come from five different countries to ensure that students understand that foodborne illness is a concern for countries around the world.
- Students are to record the location, date, numbers of cases, and suspected food source for each outbreak in the first chart.

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Researching Foodborne Outbreaks (continued)

- Students should then use the CIA Factbook website: https://www.cia.gov/library/publications/the-world-factbook/index.html
  Click on the map to navigate to the factbook. Then select country from the dropdown menu. Use the tabs "geography", "economy", and "people and society" in the factbook to locate the vital statistics. Record information on the sheet.

- Have students answer the three questions at the bottom of the sheet.

- Use the **Researching Foodborne Illnesses** rubric to assess students' work.

You may need to define and explain the vital statistics that students are to collect as you demonstrate how to use the CIA Factbook.

Total Life Expectancy (LE): The number of years that a person born in that country today can expect to live. (This indicates the quality of nutrition and healthcare available to the average person.)

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Researching Foodborne Illness Outbreaks

Directions: Using the website, http://www.foodhaccp.com/outbreak.htm, find five foodborne illness outbreaks from five different countries. Make sure that you can find the location, cause, number of cases, suspected food source, and date for each outbreak.

Outbreak Location	What Causes the Illnesses?	Number of Cases	Suspected Food Source	Date
Hungary	*Salmonella*	330	Crust of infected walnut cake	08/29/2006
United Kingdom	*Listeria*	5	Prepackaged Sandwiches	06/22/2006
China	*Parasite*	17	Snails	08/23/2006
Sudan	*Cholera*	13,800	Water	06/13/2006
United States	*E. coli O157:H7*	71	Iceberg Lettuce	12/15/2006

Directions: Using the website, https://www.cia.gov/cia/publications/factbook/index.html, find the following information for each country in your Foodborne Illness Outbreak Chart: Land Use (arable land and permanent crops), total life expectancy, population below the poverty line, and agricultural product.

Country of Outbreak	Land Use	Total Life Expectancy	Population Below Poverty Line	Agricultural Products
Hungary	Arable: 49.58% Permanent Crops: 2.06%	72.66	8.6%	wheat, corn, sunflower seed, potatoes, sugar beets, pigs, cattle, poultry, dairy products
United Kingdom	Arable: 22.23% Permanent Crops: 0.02%	78.54	17%	cereals, oilseed, potatoes, vegetables, cattle, sheep, poultry, fish
China	Arable: 14.8% Permanent Crops: 1.23%	72.58	10%	rice, wheat, potatoes, corn, peanuts, tea, millet, barley, apples, cotton, oilseed, pork, fish
Sudan	Arable: 6.78% Permanent Crops: 0.17%	58.92	40%	cotton, groundnuts (peanuts), sorghum, millet, wheat, gum arabic, sugarcane, cassava (tapioca), mangos, papaya, bananas, sweet potatoes, sesame, sheep, livestock
United States	Arable: 18.01% Permanent Crops: 0.21%	77.85	12%	wheat, corn, other grains, fruits, vegetables, cotton; beef, pork, poultry, dairy products, fish, forest products

1. Which of the countries above would you consider to be poor? What do you base your decision on?

2. Which of the countries above would you consider to be rich? What do you base your decision on?

3. Look at the agricultural products that each country produces. Using your knowledge of foodborne pathogens, predict which pathogens would most likely be a problem for each of the countries in your chart.
(*Ex. The United States produces beef, so E. coli would likely be a pathogen of concern.*)

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Researching Foodborne Illness Outbreaks

Directions: Using the website, http://www.foodhaccp.com/outbreak.htm, find five foodborne illness outbreaks from five different countries. Make sure that you can find the location, cause, number of cases, suspected food source, and date for each outbreak.

Outbreak Location	What Causes the Illnesses?	Number of Cases	Suspected Food Source	Date

Directions: Using the website, https://www.cia.gov/cia/publications/factbook/index.html, find the following information for each country in your Foodborne Illness Outbreak Chart: Land Use (arable land and permanent crops), total life expectancy, population below the poverty line, and agricultural product.

Country of Outbreak	Land Use	Total Life Expectancy	Population Below Poverty Line	Agricultural Products
	Arable: Permanent Crops:			
	Arable: Permanent Crops:			
	Arable: Permanent Crops:			
	Arable: Permanent Crops:			
	Arable: Permanent Crops:			

1. Which of the countries above would you consider to be poor? What do you base your decision on?

2. Which of the countries above would you consider to be rich? What do you base your decision on?

3. Look at the agricultural products that each country produces. Using your knowledge of foodborne pathogens, predict which pathogens would most likely be a problem for each of the countries in your chart.
(*Ex. The United States produces beef, so E. coli would likely be a pathogen of concern.*)

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http://foodsafetyinfo.org/phpbb/viewtopic.php?t=5537
Posted: Tue Aug 29, 2006 6:59 pm Post subject: Salmonella kills fourth patient in Western Hungary

Salmonella kills fourth patient in Western Hungary
29.aug.06
CaboodleNews (Hungary)
http://www.caboodle.hu/nc/news/news_archive/single_page/article/11/student_orga/?cHash=a0d3542014
An elderly woman, who was taken to the hospital in critical condition caused by Salmonella infection last week, died in Szombathely this morning. She is the fourth victim of the Salmonella outbreak that started more than a week ago, hirado.hu writes.
Tests have shown that the bacteria have gotten into more than one cake, because the crust of the infected walnut cake was ground and used in other desserts.
Nearly 50 people are being treated at the Markusovszky Hospital in Szombathely; one female patient is in a serious condition. Since the outbreak, around 100 people needed shorter or longer hospitalization. Until this morning, 330 people have visited their doctor with diarrhea.

http://foodsafetyinfo.org/phpbb/viewtopic.php?t=5402

Listeria outbreak associated with sandwich consumption from a hospital retail shop, United Kingdom
01.jun.06
Eurosurveillance volume 11 Number 6
SJ Dawson1, MRW Evans2, D Willby3, J Bardwell3, N Chamberlain3, DA Lewis4
http://www.eurosurveillance.org/em/v11n06/1106-225.asp
Tables available at http://www.eurosurveillance.org/em/v11n06/1106-225.asp

An outbreak of listeriosis occurred in the Swindon area of the UK in autumn 2003. Five cases were detected in pregnant women. Four of these women were thought to have eaten prepacked sandwiches from a retail outlet in one particular hospital. Sampling at the supplier detected Listeria monocytogenes, which was indistinguishable on molecular testing from the patients' isolates. Recent changes in UK food legislation should help diminish the risk of further outbreaks/cases such as ours occurring.
http://www.foodlaw.rdg.ac.uk/pdf/uk-06001-micro-criteria.pdf
Tables available at http://www.eurosurveillance.org/em/v11n06/1106-225.asp

http://foodsafetyinfo.org/phpbb/viewtopic.php?t=3923
Posted: Tue Jun 13, 2006 8:37 pm Post subject: Sudan cholera outbreak reaches war-torn Darfur

Sudan cholera outbreak reaches war-torn Darfur
Mon Jun 12, 12:35 PM ET
Source of Article: http://news.yahoo.com/s/nm/20060612/hl_nm/cholera_outbreak_dc_1

KHARTOUM (Reuters) - A cholera outbreak in Sudan has spread to the war-torn western Darfur region, posing a serious threat to the 2.5 million living in squalid camps in cramped conditions, a U.N. statement said.
Cholera spreads rapidly in close-knit populations. An outbreak that began in late January in south Sudan has killed at least 516 people among more than 13,800 cases, affecting 6 of the 10 southern states.
"The World Health Organization (WHO) in Nyala (south Darfur) confirmed 65 cases of acute watery diarrhea," said a U.N. statement sent late on Sunday.
Cholera is an acute, diarrheal illness caused by infection of the intestines with the bacterium Vibrio cholerae.
The statement said an aid agency had confirmed one cholera fatality in Gereida, in southeast Darfur, where almost 100,000 people have fled their homes to seek safety in the town. "WHO issued an alert warning on the cholera outbreak," the statement added. Three years of rape, pillage and murder in Darfur has herded much of the population to crowded urban centers away from rural villages. Scarce food supplies, a lack of healthcare and the upcoming rainy season make them more vulnerable to the water-borne disease. Cholera causes vomiting and acute diarrhea that can lead to rapid dehydration and death within 24 hours if not treated.
http://foodsafetyinfo.org/phpbb/viewtopic.php?t=7951

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Update: E. coli O157:H7 outbreak at Taco Bell restaurants likely over FDA traceback investigation continues

14.dec.06

FDA press release

Today, the U.S. Centers of Disease Control and Prevention (CDC) stated that the E. coli O157:H7 outbreak linked to Taco Bell restaurants in Northeastern states appears to be over. However, additional cases from the outbreak period could still be identified. Based on a number of factors, iceberg lettuce is considered overall to be the single most likely source of the outbreak at this time. The Food and Drug Administration (FDA) continues to narrow its investigation by focusing its efforts on finding the sources of shredded iceberg lettuce served at the restaurants.

The peak of the outbreak occurred from the last week of November until the beginning of December. No new cases have been reported as of December 14, 2006. A total of 71 cases in five states have been reported to the CDC: Delaware (2 cases), New Jersey (33 cases), New York (22 cases), Pennsylvania (13 cases) and South Carolina (1 case - this person ate at a Taco Bell in Pennsylvania). 53 hospitalizations and 8 cases of Hemolytic Uremic Syndrome (HUS) have been reported. For the latest details about these cases, see the CDC website at http://www.cdc.gov/ecoli/current.htm.

FDA investigators continue to expedite review of Taco Bell's records in order to trace the distribution channels of the iceberg lettuce and identify the farm or farms where the lettuce was grown, as well as all firms and facilities that handled the product. The agency is aware of the outbreaks of E. coli O157:H7 at Taco John's restaurants in Iowa and Minnesota, and is monitoring these closely in cooperation with state health authorities. Based on genetic fingerprinting of the E.coli, these outbreaks do not appear at this time to be related to the Taco Bell outbreak. FDA continues to collaborate with CDC, and with state and local health officials, to determine how these outbreaks occurred and find the source of suspect food items.

Infection with E. coli O157:H7 can cause diarrhea, often bloody. Although most healthy adults can recover completely within a week, some people can develop hemolytic uremic syndrome (HUS), which can lead to a form of kidney failure. This condition is most likely to occur in young children and the elderly. The condition can lead to serious kidney damage and even death. Consumers who are concerned that they may have contracted E. coli O157:H7 infection should notify their local health department, and contact their health care provider to seek medical attention.

More information about E. coli O157:H7 and the outbreak linked to Taco Bell restaurants on the East Coast is available at: http://www.fda.gov/oc/opacom/hottopics/EcoliOutbreaks/restaurants.html.

FDA will provide additional media updates on this investigation as more information becomes available.

Outbreak fears: Hepatitis A at sushi outlet

26.mar.07

Sydney Morning Herald (Australia)

Ruth Pollard

http://www.smh.com.au/news/national/outbreak-fears-hepatitisa-at-sushi-outlet/2007/03/25/1174761283875.html

Hundreds of people could be affected by a potential outbreak of hepatitis A after a food handler in a sushi restaurant was, according to this story, diagnosed with the highly infectious virus.

NSW Health was cited as issuing a warning to patrons of Sushi from Xanadu, at Birkenhead Point shopping centre, urging those who ate there on March 11, 12, 17 and 18 to attend a specially established clinic for a check-up and preventive injection.

Jeremy McAnulty, the director of communicable diseases at NSW Health, was quoted as saying, "We know it's a very busy sushi outlet that sells ready-to-eat sushi, but we don't know how many people [may be affected], there could be hundreds."

Dr McAnulty was cited as saying that when a food worker is found to have hepatitis A, public health officials look at whether they were symptomatic when handling the food - he was - and whether the food was cooked later on - it was not, adding, "It is often not obvious that it is hepatitis A, a person may be vomiting, nauseous and off their food, but it is only later on that jaundice appears, which indicates hepatitis." Another complicating factor was the length of the incubation period - a month, as compared with many other gastro diseases which incubate over a few days. Dr McAnulty was further cited as saying that rates of hepatitis A have fallen over the past decade - in 2006 there were 94 cases, in 2005 there were 79, and numbers tended to increase after holiday periods when travellers returned from overseas countries where the virus was prevalent.

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Unit Activities:	Review, Outbreak Maps	*Learning Objectives:*	Students will be able to: 1. Demonstrate an understanding of the characteristics of maps and geographic tools. 2. Understand the relationship between specific measures and the quality of life in a particular country. 3. Critically analyze connections between standards of living and foodborne illnesses. 4. Apply knowledge of location of places and geographic features to create an outbreak map.
Instructional Events:	Enhance Retention & Transfer		
Materials:	Reference Maps, Atlases, Colored Pencils		
Student Handouts:	Blank outline map (pg. SS26)	*Content Standards:*	7G.2.1 7G.1.3 7G.1.1 7G.5.1 CC W 7.7 CC W 7.8

Activities:

Review (5 minutes)

Daily Review Question: **Yesterday you began creating maps that illustrate your outbreaks research. What was the poorest country in which you found an outbreak? What was the wealthiest? Today you are going to complete your maps and you are going to assess your own work.**

Creating Foodborne Illness Outbreak Maps: (50 maps)

Purpose: To allow students to develop expertise with the new information and create a construct for transferring knowledge to long-term retention.

Learner Level: All

Using the data generated from their **Researching Foodborne Illnesses** worksheet direct students to:

- Construct a map showing their findings. (They may use the blank world outline map provided or draw their own.)
- Students should have access to reference maps, atlases, colored pencils, etc.
- For each outbreak, students should label the location, date, number of cases, suspected sources, and each neighboring country. (Students should create a legend or key due to space restrictions.)

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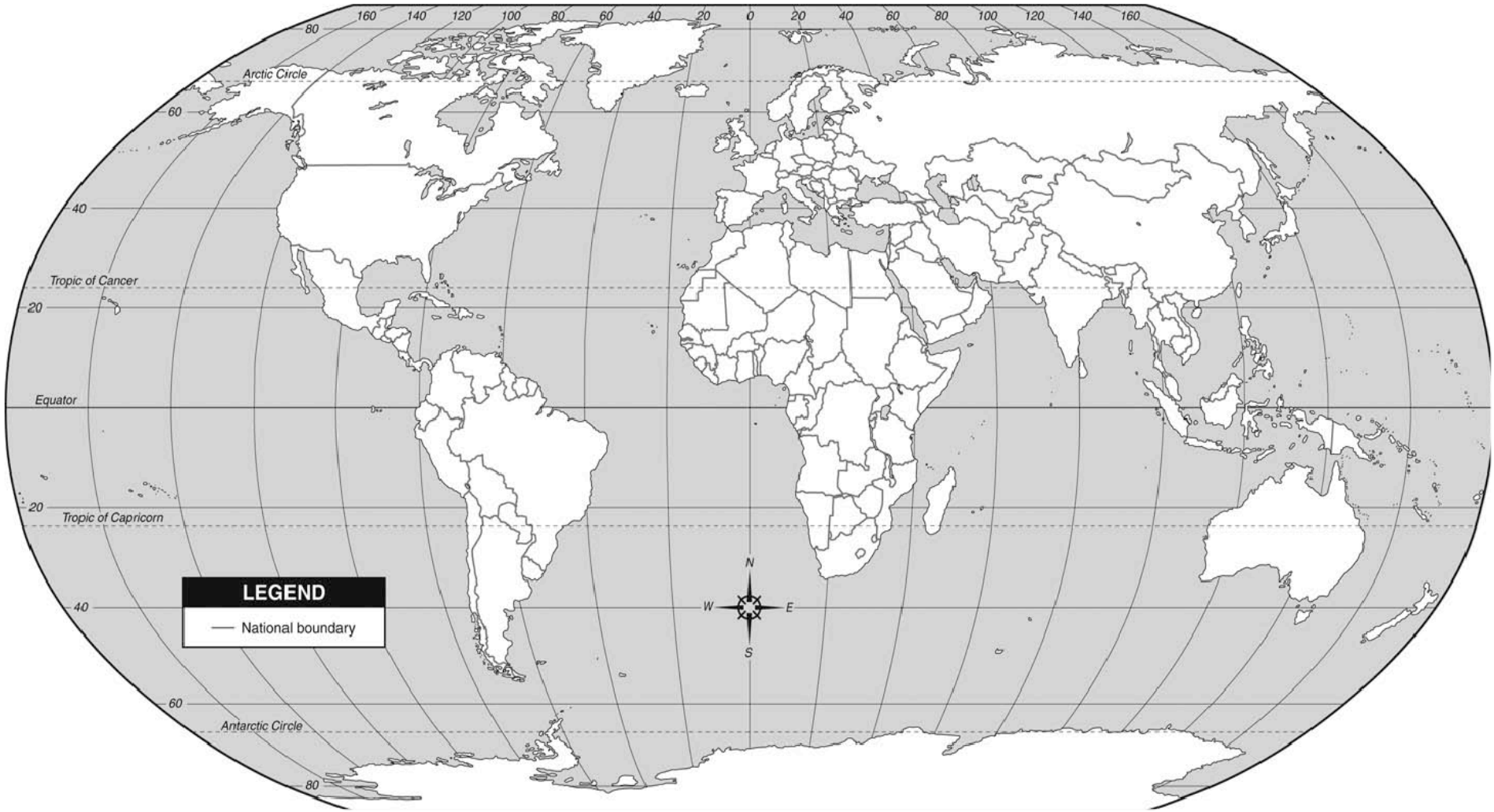
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80
LEGEND
National boundary
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Researching Foodborne Illnesses

0	2	4	6	8	10	You find five outbreaks of foodborne illnesses since 2005.
0	2	4	6	8	10	You find outbreaks from five different countries and five different organisms (ex. *Salmonella, E. coli,*).
0	2	4	6	8	10	You demonstrate good research skills by accurately reporting the location, date, number of cases, and suspected cause of each outbreak.
0	2	4	6	8	10	For each country in which you locate an outbreak, you include that country's total population life expectancy, Land Use, Population Living Below the Poverty Line, and Agricultural Products.

TOTAL: /40 points

Foodborne Illness Outbreak Map Self-Assessment

0	1	2	3	4	5	Using the blank outline map of the world provided by my teacher, I correctly labeled each country where an outbreak occurred.
0	1	2	3	4	5	I correctly labeled each neighboring country.
0	1	2	3	4	5	For each outbreak I included the date, location, number of cases, and suspected cause of the foodborne illness.
0	1	2	3	4	5	I used appropriate coloring on my map. (Blue only for water, countries outlined in black, labels clearly legible.)

TOTAL: /20 points

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Unit Activities:	Review, Debriefing, Self-Assessment	*Learning Objectives:*	Students will be able to: 1. Summarize symptoms of Foodborne Illness and preventative measures. 2. Construct a well-supported argument to justify their position on possible relationships between standard of living and foodborne illnesses. 3. Describe the relationship between advances in science, technology, and outbreaks of foodborne illnesses.
Instructional Events:	Enhance Retention & Transfer		
Student Handouts:	Foodborne Illness Outbreak Map Self-Assessment (pg. SS27)		
		Content Standards:	CC SL 7.4 CC SL 7.5

Activities:

Review (5 minutes)

Daily Review Question: **Last week we learned about the causes and prevention of foodborne illnesses. You also researched some specific bacteria that can make you sick and learned about outbreaks of foodborne illnesses worldwide. Did any of you handle your food differently this weekend as a result of what you learned last week? Today we are going to discuss your research findings and outbreak maps and finish up with a reflection on what you have learned over the past week.**

Debriefing: (25 minutes)

- Lead a brief classroom discussion on the following:
  - Are there connections between a country's standard of living and outbreaks of foodborne illnesses? If so, what do you think those connections are?
- There is no right or wrong answers here. Students should be able to justify their discussion based on the standard of living data they collected.

Self-Assessment (10 minutes)

- Students should complete the **Foodborne Illness Outbreak Map Self-Assessment** (pg. SS27)

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