Pizza and Pathogens

Lesson 3

Required Materials

- PowerPoint slide show for Lesson 3
- Video clip: Lucille Ball in Chocolate Factory
- Pizza Production Materials: 12 crackers, pepperoni, cheese, olives and pizza sauce, tablespoons, gloves, plates and bags for items

Preparation

- Prepare items for Pizza Production Race, separating for teams
- Request necessary media equipment for screen and laptop
- Have PowerPoint set up before class
- Have web browser ready with Lucille Ball video loaded, and Libbey’s factory video if using.

Introduction

Begin class by showing the students the Lucille Ball Chocolate Factory clip.

Say: I hope you were all watching carefully, because now we are going to have a Pizza Production Race. We have (choose either two teams of four or split the whole class into teams of four) ____ teams competing to make six pizzas in a production line as fast as they can, while keeping their pizzas clean and nice looking.

Each team will have one person who takes a cracker and adds exactly 2 tablespoons of sauce, who passes it to the next in line. That person adds exactly 2 tablespoons of cheese, the next adds a pepperoni and the last person an olive or two. The team with the fastest time, and the nicest looking pizzas win. Have each team set up their factory line. Inform them that safety standards require gloves in factories for pizza, and have team members use them. Each ingredient should be in separate bags, which the designated team members will have. Use small dessert plates to pass each pizza along (6 for each team).

Transition

After a winner is declared, ask the students to share their pizza crackers while we learn about how factories get contaminated and some new science and engineering ideas to help fight it.

(Click animation 1 in Slide 2) Begin by reminding the students of the best idea from the Mission Impossible assignment. Well, all that food that isn’t caught and thrown away can bring bacteria into food factories (Click animation 2). Then it can be carried all the way through to your plate at home.

Factories also have many workers, each one who might bring in their own germs.

What do factories do to keep their food clean and safe?

Most require their workers to wear gloves and face masks and hair nets. These keep contamination down. Have you ever visited a place that made you wear gloves or something like this?

Pizza and Pathogens teacher’s resources can be found at AUDFS.eng.auburn.edu.
Resources sponsored by Auburn University’s Center for Detection and Food Safety in Auburn, Ala.
Even with all our efforts and the pages and pages of rules that companies must follow, the still have problems with contamination. Check out these foods that are causing new food illness outbreaks.

Many companies are looking to really high tech solutions to this problem. They spare no expense because the illnesses are costing major money. Show the students the numbers and info on Slide 6.

So, how do we find those pathogens and figure out how they are getting into the food when they do? Remember how difficult it was to think of ways to prevent contamination on our tomato farm?

Some are researching using tiny, tiny sensors called biosensors. They can put them in a sample of food and find out quickly if there is a pathogen on it.

Some researchers have been testing out a special stainless steel surface that can resist being contaminated, too!

Right now, companies have to use expensive microbiology testing to find out if their food is contaminated. And it takes weeks in the lab! So many food companies use these tests that over 50 percent of all testing is for the food businesses. Isn't that incredible!?

But, the factory isn't the only place we have to worry about.

Question
What happens to our yummy pizza once it leaves the plant? It probably gets on a truck. Unless you made your pizza from ingredients at home.

Homework
Tonight, look in your pantry and refrigerator and try to find an ingredient for pizza. Any ingredient will do, and if you can't find a pizza ingredient, use something else. Your task is to figure out how far the ingredient travelled, whether it is olive oil, a spice or a pepperoni, or cheese. Try to find out how many miles it travelled to get to your house. Use Google Maps with an adult to find the exact miles on a computer.

Extension Activity:
How to Make a Libbey Pumpkin
Start the video around 3:30 min mark.
Say: Let's take a real life look at how the pumpkin most of us use in our pumpkin pies at Thanksgiving and Christmas is made. This student is in the middle of a tour. Let's see what it's like at the pumpkin factory.

Resources
Video: http://www.youtube.com/watch?v=2WOrSPxegiw