



2011 FLL CHALLENGE

FLL FOOD FACTOR® TEAM ACTIVITY #2

contamination in the kitchen

Introduction

In this activity, you will see how working with a food, such as raw meat, can contaminate hands, tools and surfaces in your prep area.

Safe food handling is important at all stages of production: on the farm, in transport, in processing facilities, at distribution points such as stores, and finally, in the kitchen and in serving. Just as a chef must consider the health of her restaurant customers, the home cook must be aware of the safety of the people he's serving.

Activity

To learn more about safe food handling, a chef will prepare a piece of raw meat (paper towel soaked in laundry detergent) for cooking and attempt to clean the area, while a health inspector observes and then carefully inspect all surfaces for remaining contamination.

Some team members (such as the chef) will work with the raw meat (soaked paper towel) and some will keep their hands clean (such as the inspector and anyone taking notes). This activity can be done by the entire team in two ways:

1. Break the team into a number of small home kitchen crews, each containing at least a chef and health inspector
2. Create one restaurant kitchen crew, assigning roles to everyone on your team

If you opt to act as a restaurant kitchen crew, roles may include:

- Chef
- Assistant (or sous) chef, sets up the area for the chef without handling the raw meat, makes notes, keeps hands clean
- Dishwasher, washes dishes and prep area
- Server, serves food
- Health inspector's assistant, takes notes, operates black light
- Health inspector, examines surfaces and hands under black light, gives seal of approval or condemns kitchen until further cleaning

<http://usfirst.org/fll> • <http://firstlegoleague.org> • FLL® is the result of an exciting alliance between FIRST® and the LEGO Group.

FIRST® is a registered trademark of the United States Foundation for Inspiration and Recognition of Science and Technology (FIRST). LEGO® and MINDSTORMS® are registered trademarks of the LEGO Group. FIRST® LEGO® League, FLL®, Junior FIRST® LEGO® League, Jr.FLL™, and FOOD FACTOR® are jointly held trademarks of FIRST and the LEGO Group.

©2011 FIRST and the LEGO Group. All rights reserved. Official FIRST LEGO League (FLL) teams and FIRST LEGO League (FLL) Operational Partners are permitted to make reproductions for immediate team and Operational Partner use only. Any use, reproduction, or duplication for purposes other than directly by the immediate FLL team as part of its FLL participation is strictly prohibited without specific written permission from FIRST and the LEGO Group.



Materials:

- liquid laundry detergent
- small bowl
- paper towels
- cutting board
- scissors
- black fluorescent light (available at hardware stores and places like Wal-Mart for under \$15)
- regular kitchen sponge (not the kind with a scrubby side)
- dish towel
- sink with running water
- paper and pen or pencil for note takers

Method

Arrange a work area in a room with a sink. Even better, don't arrange it at all! Just get to work and get things as you need them.

Chef: Soak a paper towel in liquid laundry detergent in a bowl. This is your raw meat. Get a cutting board and some scissors. Lay the paper towel out on the cutting board, flip it over a few times, cut it into smaller bits, set it aside in another bowl. Don't clean up or wash hands yet!

Inspector and/or Inspector's Assistant: Observe and make note of everything DH has touched in this process. Keep a written list because you will need to check everything for contamination soon.

Health Inspector: Turn off the lights and use the black light to inspect examine the meat first. What do you see? Now inspect all surfaces and tools (cutting board, scissors, faucet handle, for example) touched by the Chef and all kitchen assistants. Inspect the Chef's hands and under her fingernails. What do you see? Once you've made note of what you see, turn on the lights.

Chef, sous chef and dishwasher: Now it's time for your first round of cleanup. Throw away the soaked paper towel, wash hands as you normally would, rinse your scissors, cutting board and bowls. Use a sponge and dish towel, as needed.

Inspector: Note the sources touched and cleaned by the Chef during this first round of cleanup. Once cleanup is done, turn the lights off. Inspect all surfaces again (and don't forget to check the faucet handle, the sponge, around the trash can, any drawer pulls or cabinet doors that were touched). Check the Chef's hands and under his/her fingernails. Is more cleanup required?

Keep cleaning until all evidence of contamination is gone! If the Chef can't get the kitchen fully cleaned, the Inspector will shut down the kitchen until it is completely clean and free of contamination.



Discussion and Further Research

How hard was it to completely clean up the mess? Did you find traces of contamination in places that surprised you? How did you get those areas cleaned?

What precautions could you take the next time to avoid contaminating so many things and areas? Consider everything from how you handled the raw meat to tools used to faucet handles to what kind of trashcan you have in your work area.

What additional precautions would you need to take in your home kitchen, provided you didn't do this activity in your home kitchen?

Food contamination isn't as easy to detect as liquid laundry detergent with a black light, so we have to be very careful about how we handle food, cook, and cleanup! Often, we don't know contamination has happened until someone gets sick. Food contamination can be very serious or even fatal: do some additional research on listeria, salmonella, e. Coli, and botulism to learn more about the various organisms present in food that can make people ill. Who is most vulnerable?

This activity was small in scale. How do you think it would be different if the contamination happened in a meat-packing plant, for example?

This activity only involved food prep and didn't involve farming, transporting, processing, selling, actual cooking, storing, serving, or reheating of food. There are hazards and guidelines for every step of the process. Learn more about health codes in your area by contacting your local health department. They can tell you all about food safety, particularly in restaurants.