

Chapter 3

Introduction to Food Safety

Activity 3.1 Compare and Contrast Hazards

Directions

Biological Hazards	Chemical Hazards	Physical Hazards
List examples of biological hazards. • Viruses: Examples of viruses that can cause foodborne illness include hepatitis A and Norovirus. • Bacteria: Examples of foodborne bacteria include <i>Salmonella</i> Typhi, Nontyphoidal <i>Salmonella</i>, <i>Shigella</i> spp., and shiga toxin-producing <i>E. coli</i> (STEC) also known as <i>E.coli</i>. • Parasites: In the United States, the most common foodborne parasites are protozoa, roundworms, and tapeworms. The foodborne parasite that causes the most hospitalizations and deaths in this country is <i>Toxoplasma gondii</i>, which causes toxoplasmosis. • Fungi: Mold and yeast are two examples of fungi. • Biological toxins: Sometimes plants or animals can become contaminated with biological toxins somewhere in the food chain. Examples of this might be contaminated seafood resulting from fish eating toxic algae or poisonous wild mushrooms.	List examples of chemical hazards. • Restaurant and foodservice chemicals can contaminate food if they are used or stored in the wrong manner. This includes cleaners, sanitizers, polishes, and machine lubricants.	List examples of physical hazards. • Fingernails, hair, and bandages • Fruit pits • Glass from broken lightbulbs • Jewelry • Metal shavings from cans

Teacher Note:

This activity is left open-ended for ease in customizing your instruction. If possible, integrate the ServSafe text into the curriculum for additional resources and information. More information can be found at [ServSafe.com](https://www.servsafe.com).

As part of a follow-up discussion, you may ask students if they have ever encountered any of these foodborne hazards, either at home or while dining out.

Activity 3.2 Bacteria and FAT TOM

Directions

Explain each of the six conditions needed for bacteria growth, known as FAT TOM.

What Bacteria Need to Grow: FAT TOM

F ood	To grow, bacteria need an energy source. Carbohydrates, such as baked potatoes, and proteins, such as beef, are examples.
A cidity	Bacteria grow best in food that contains little or no acid. Lemons have a lot of acid, but food items, such as chicken and cooked corn, have very little.
T emperature	Bacteria grow well in food at a temperature between 41°F and 135°F (5°C and 57°C). This range is known as the temperature danger zone, or TDZ for short.
T ime	Bacteria need time to grow. The more time bacteria spend in the TDZ, the more opportunity they have to grow to unsafe levels.
O xygen	Some bacteria need oxygen to grow. Others grow when oxygen isn't present. For example, bacteria that grow without oxygen would grow quickly in a pot of cooked rice.
M oisture	Bacteria need moisture in food to grow. Tomatoes and melons, for example, have a lot of water, which means they can easily support pathogen growth.

Teacher Note:

Refer to the **Bacteria** heading in Section 3.2 in the *Foundations of Restaurant Management and Culinary Arts, Third Edition* student textbook.