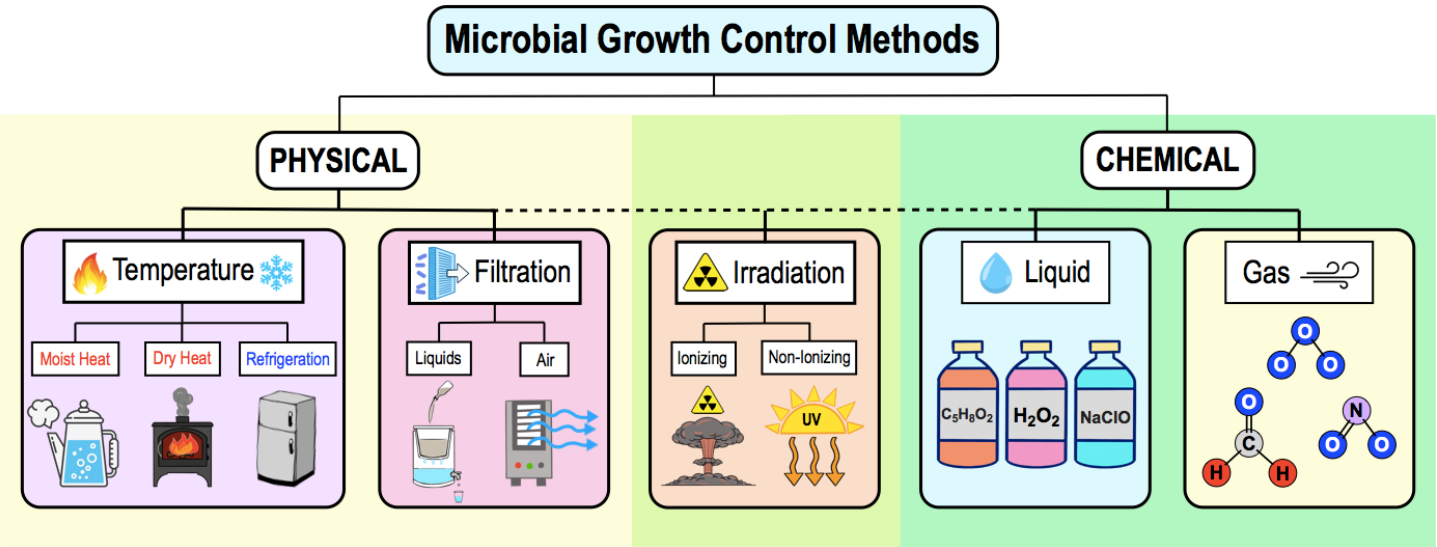
CONCEPT: INTRODUCTION TO CONTROLLING MICROBIAL GROWTH

●Controlling microbial growth is critical to human health & a wide variety of processes (ex. manufacturing products/foods).

- □ Uncontrolled microbial _____ can lead to increased risk of disease & spoilage/reduced quality of products.
- □ Processes used to control/limit microbes are either _____, _____ or both.
- □ Selecting a process depends on many variables including the circumstances & level of control required.

EXAMPLE: Map of the Lesson on Processes Controlling Microbial Growth.



PRACTICE: Why is it important to human health and wellbeing that we control microbial growth?

a) Uncontrolled microbial growth can lead to increased risks of disease and infection.
b) Uncontrolled microbial growth can lead to spoilage of food products.
c) Uncontrolled microbial growth can lead to contaminated experiments.
d) All of the above.

PRACTICE: Physical methods used to control microbial growth include all of the following *except*?

a) Refrigeration.
b) Air filtration.
c) Liquid chemical disinfectants.
d) Steam (moist heat).

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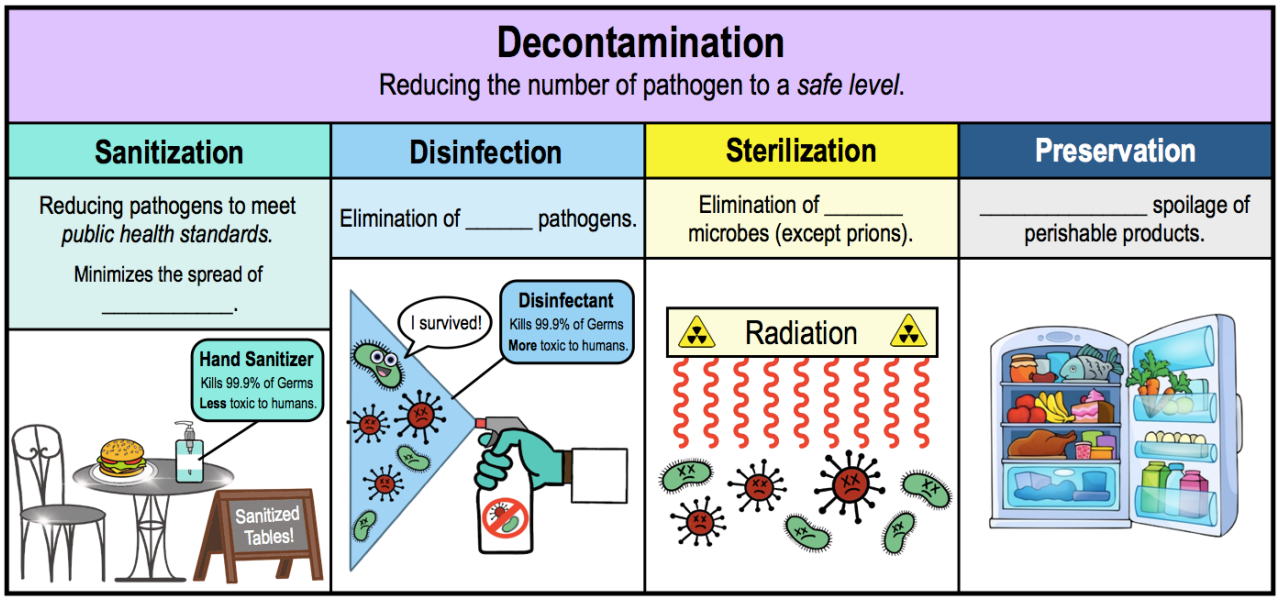
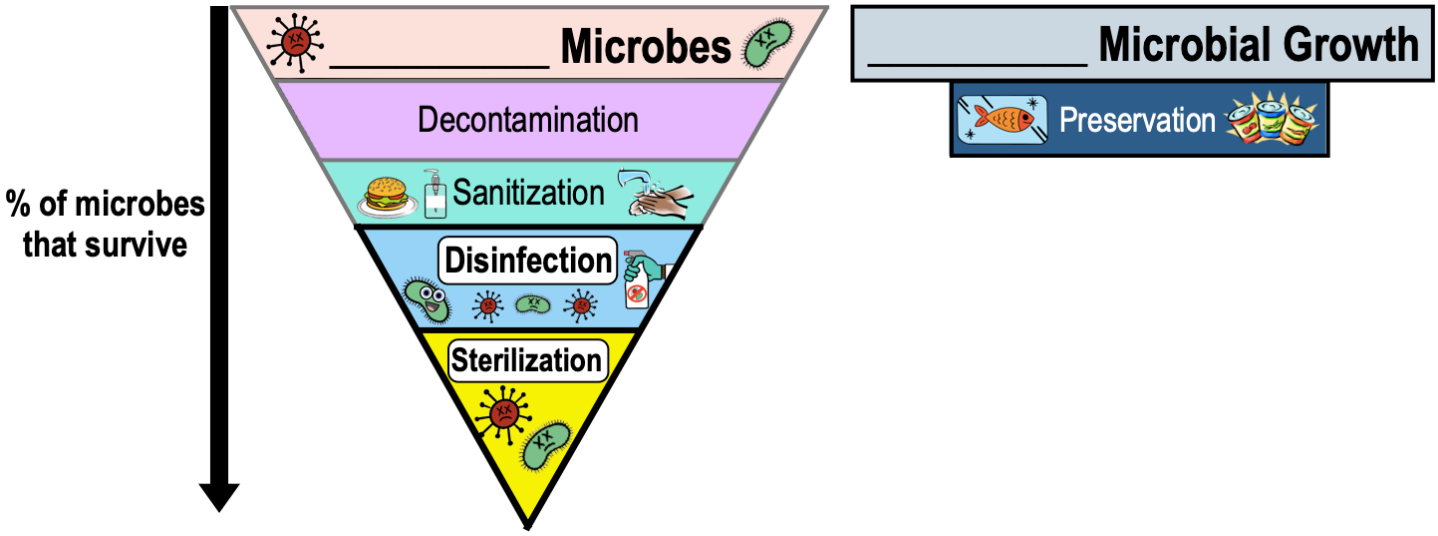
Terminology of Microbial Growth Control

●Several terms are used in relation to controlling microbial growth:

- □ **Decontamination**: *general* term referring to the _____ of the number of pathogens to a *safe level*.
- □ **Sanitization**: cleaning & *reducing* pathogens to meet *accepted public health standards*, minimizing disease.
- □ **Disinfection**: elimination of _____ *pathogens* (*disease-causing* agents); some *viable* microbes may remain.
- □ **Sterilization**: elimination of _____ microbes (except prions) such as microorganisms, viruses & endospores.
- □ **Preservation**: process of _____ spoilage of *perishable products* (items likely to go bad quickly).



Hierarchy of Microbial Growth Control Terminology



CONCEPT: INTRODUCTION TO CONTROLLING MICROBIAL GROWTH

PRACTICE: What is the main difference between preservation and sterilization?

a) Preservation does *not kill* microbes but delays microbial growth. Sterilization kills *all* microbes, except prions.

b) Preservation preserves food by killing *all* microbes present in/on food. Sterilization kills *most* pathogenic microbes.

c) Preservation reduces pathogens to meet health standards. Sterilization kills *all* microbes.

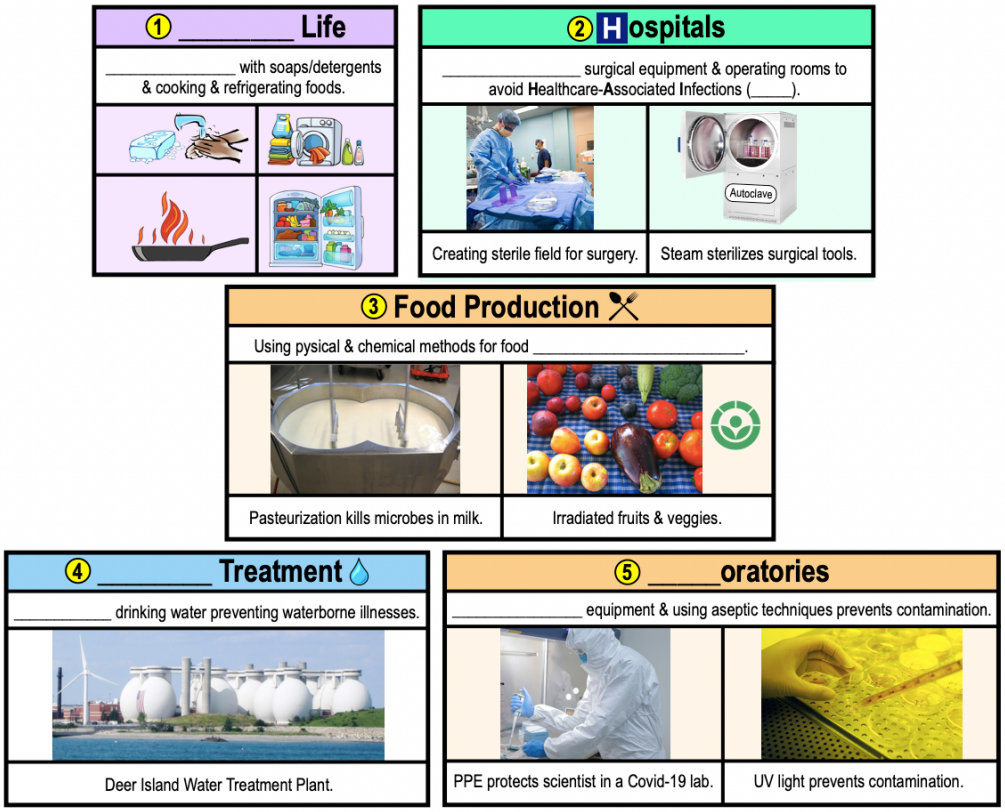
d) Preservation kills *all* microbes except prions. Sterilization kills *all* microbes, including prions.

Situations Warranting Different Levels of Microbial Growth Control

●Methods used for microbial growth control _____ greatly depending on the situation & level of control.

□ Control measures used on a regular basis at your home may not be adequate for a surgery room in a hospital.

EXAMPLE: Different Scenarios Require Different Levels of Microbial Growth Control.



PRACTICE: Which of the following concerning the varying levels of microbial control is *false*?

a) We clean and sanitize our homes to *reduce* the number of microbial pathogens.

b) Hospitals attempt to *sterilize* and *kill all* microbes in rooms and on tools to prevent infection.

c) Pasteurization and irradiation are common microbial growth control methods used in food production.

d) Laboratories *sterilize* media and tools to prevent contamination of their experiments.

e) All of the above are true.