

Learning Goals

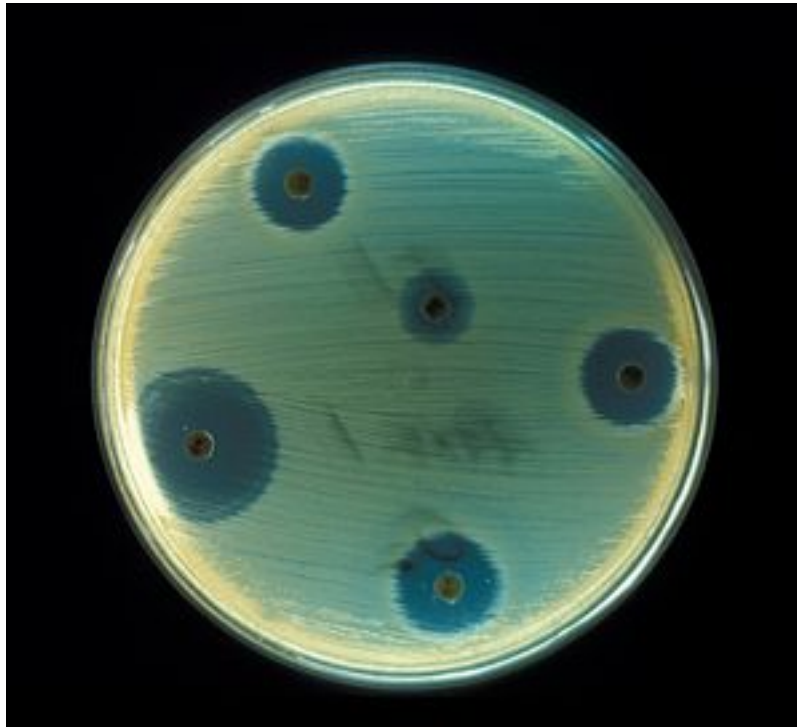
D 3 *We are learning to demonstrate an understanding of the diversity of living organisms*

I can...

- describe unifying and distinguishing anatomical & physiological characteristics of representative organisms from each of the kingdoms

Bacterial Resistance to Antibiotics

antibiotics - chemicals that prevent the growth of or destroy certain microorganisms



How does resistance develop?



How does resistance develop?

- when bacteria populations are exposed to drugs, the weaker bacteria die
- other bacteria have variations in genetic material that allow them to survive ---> genes that code for enzymes ---> these enzymes inactivate drugs
- These resistant bacteria reproduce & soon resistance develops among more and more bacteria

Are All Bacteria Harmful??

- NO!! Bacteria can be harmful or helpful.

Type of Bacteria	Benefits
clostridia	Production of butanol and acetone from molasses
acetobacter	Production of vinegar from alcohol
Intestinal bacteria	Food digestion; synthesizing of vitamins
Aztobacter, nitrobacter	Fixation of nitrogen in soils
Streptococci, lactobacilli	Production of dairy products (cheese, buttermilk, yogurt,...)
streptomyces	Group source of antibiotics (streptomycin, terramycin, erythromycin,...)s

Not so helpful bacteria...

Type of Bacteria	Benefits
clostridia	Botulism, tetanus, gangrene
streptococci	Strep throat, scarlet fever, pneumonia
staphylococci	Boils, food poisoning, skin infections
lactobacilli	Souring of milk
pseudomonads	Gasoline spoilage
Staphylococci and pseudomonads	Food spoilage

MRSA-(methicillin-resistant *Staph aureus*)

