Assignment:\_\_\_\_ Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Bacteria – Small and Successful**

**Bacterial Characteristics**

* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (3.5 billion) most \_\_\_\_\_\_\_\_\_\_\_\_ organisms
* Bacteria are \_\_\_\_\_\_\_\_\_\_\_
* Bacteria are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  + No nucleus or membrane organelles

**Where can you find bacteria?**

* Every \_\_\_\_\_\_\_\_\_\_\_\_
* Deep \_\_\_\_\_ vents
* \_\_\_ \_\_\_\_\_\_\_\_\_\_ under ground
* In/on \_\_\_\_\_\_
  + There are more bacterial cells on your body than human cells in it

**What do Bacteria eat?**

* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  + Sunlight
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  + Sugar, dead stuff, parasites
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  + Chemical potential energy

**Bacterial Reproduction**

* Bacteria reproduce by \_\_\_\_\_\_\_\_\_ in \_\_\_\_\_\_: \_\_\_\_\_\_\_\_\_\_\_\_\_\_
  + NOT \_\_\_\_\_\_\_\_\_\_\_
  + Why can’t bacteria do mitosis?
    - Mitosis is division of the nucleus and bacteria have no nuclei
* Bacteria can have sex?
  + \_\_\_\_\_\_ exactly
  + Bacteria can \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
    - Basically they can transfer DNA from one to another

**Bacterial Classification**

* Shapes
  + 3 basic shapes
    - \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
    - \_\_\_\_\_\_\_\_
    - \_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Gram Staining
  + Stain sticks to cell wall - \_\_\_\_\_\_\_\_\_\_\_\_\_\_
  + Stain does not stick, extra layer - \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
    - This extra layer provides immunity to some \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Bacterial Importance**

* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  + Cycle nutrients
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_
  + Provide usable N for plants
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  + E. coli aid in our digestion
* Bacterial Manufacturing
  + Make \_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_ etc.

**Bacteria as Pathogens**

* What is a pathogen?
  + A pathogen is anything that \_\_\_\_\_\_\_\_\_\_\_ an \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  + Not all bacteria are pathogens all the time
* What illnesses are caused by bacteria?
  + Salmonella
  + Strep Throat
  + TB
  + Leprosy
  + Lyme Disease
    - Generally the bacteria themselves are harmless, but they can produce deadly toxins that cause the disorder
* Infected? How did that happen?
  + Physical Contact
  + \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  + \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
    - Ricks, mosquitoes etc.
  + \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
    - Cough/sneeze (sneeze = 100 mph)
* What can I did to protect myself?
  + Avoid \_\_\_\_\_\_\_\_\_\_ people
  + Good \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_/sanitation
  + \_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_
    - Refrigeration, cooking, pasteurization, irradiating
  + \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
    - Stimulates the bodies defenses
* What if it’s too late?
  + Wait for \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
    - Body will defend itself from invaders
  + Antibiotics
    - Means against living, kills bacteria
    - Doesn’t work on \_\_\_\_\_\_\_\_\_\_\_\_
    - Work in many ways
      * Some break down \_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_ etc
    - Kill bacteria \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
      * Good bacteria die as well
      * Causes abdominal pain, diarrhea, etc.
  + Antibiotic Resistance
    - Some bacteria \_\_\_\_\_\_\_\_\_\_\_\_\_\_
    - Can be \_\_\_\_\_\_\_\_\_\_\_\_\_
      * Similar to plague resistance gets passed on
  + How do bacteria become resistant?
    - Antibiotics over \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
    - People don’t take \_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_
    - Prescribed for \_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
    - Conjugation
    - Mutation
      * Random mutations can lead to resistance