**Honors Biology**

**Kingdoms and Phyla Characteristics**

**Chapter 19: The Bacteria**

**Characteristics**

 The bacteria are all **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**and are classified into two groups; the **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**and **archaebacteria**. Eubacteria have the carbohydrate **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** in their cell walls while the archaebacteria do not. Most archaebacteria live in harsh environments like extreme \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_or low\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

 Bacteri are found in three common shapes: **bacilli** (rod), **cocci** (spheres), and **spirilla**.



**Metabolism**

 Bacteria are either **­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**(cannot make their own food) or **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**(make their own food through photosynthesis.

 If they use chemicals to meet their energy needs the prefix "**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**" is added (chemoheterotrophs or chemoautotrophs). If they also need light the prefix "**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ "** is used. Aerobic bacteria need oxygen while anaerobic ones do not.

**Growth and Reproduction**

 Most bacteria reproduce asexually using **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_fission** (splitting in two). Some can also reproduce sexually in a process known as**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**.



 Under stressful conditions bacteria may form an **­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**which has a thick cell wall and some cytoplasm. These structures can remain dormant for years.



**Importance**

 Bacteria are essential **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**in ecosystems and are one of the few organisms that can take nitrogen out of the air so that other organisms can use it (**nitrogen\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**). Bacteria are also used in many commercial products (cheese, wine).

**Viruses**

Viruses are technically not \_\_\_\_\_\_\_\_\_\_\_\_because they can only carry out life functions in the presence of other\_\_\_\_\_\_\_\_\_\_\_\_\_. Viruses that infect bacteria are called**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**.



A virus consists only of a piece of **\_\_\_\_\_\_\_\_\_\_\_**or RNA surrounded by a **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_coat** (**capsid**).

 A virus \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_in one of two ways: a **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_infection** or a **lysogenic infection**. In both the virus injects its \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_acid into the host cell (the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_coat stays on the outside).

The nucleic acid then instructs the host cell to make more of the \_\_\_\_\_\_\_\_\_\_\_\_\_coat.

 In a lytic infection the cell then bursts (**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**) releasing new viruses to begin the cycle again. In a lysogenic infection the nucleic acid may remain inactive for years.



**Diseases**

 What are **Pathogens?** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Many diseases are caused by bacteria including;\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, scarlet fever, diphtheria, and many infections.

 Bacterial diseases are treated with **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**(weakened forms of the pathogen) or **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**(prevent the reproduction of the pathogen).

Heat and disinfectants kill many bacteria while dry conditions and cold slow their growth.

Viral diseases include;\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, cancer, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, measles, smallpox, Ebola, and the common cold.





 Many bacterial diseases are viral diseases are spread by diseases carrying agents called**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**. Insects (mosquitoes), \_\_\_\_\_\_\_\_\_\_\_\_\_\_, and \_\_\_\_\_\_\_\_\_\_\_are common vectors.