Bacteria PowerPoint Notes

Cells function similarly in all living organisms

What are bacteria?
Bacteria are the only ____________________(cells with no nuclei). Bacteria consist of a single, prokaryotic cell. All other life forms on Earth are eukaryotes. Bacterial cells have a cell ____________________ that is surrounded by a tough cell _________________.

Where do bacteria live?
Bacteria live on or in just about every material and ____________________ on Earth. They live in soil, water, and air. They are found in the coldest regions of the Arctic and even in ____________________ waters near undersea volcanoes. There are many bacteria in each environment. A square centimeter of your skin has ________________ of bacteria. A teaspoon of soil contains more than a ________________ bacteria.

Bacteria are divided into two kingdoms: Archaebacteria and Eubacteria.
__________________ which are found in ________________ environments like volcanic vents in the ocean, are thought to be the ________________ organisms on Earth.
__________________, which are found almost everywhere else, have a different ________________ makeup than archaebacteria.

How big are bacteria?
__________________(μm) are used to measure bacteria with one micrometer equaling ________________ of a meter. The size of bacteria range from 1μm to 5μm. Eukaryotic cells tend to be about ________________ times larger than bacterial cells.

Bacteria are often described according to the ________________ of their cells.
Some bacterial cells exist as individuals while others exist in pairs, chains, or clusters. _______-shaped bacteria are called bacilli. _________-shaped bacteria are called cocci. ____________ shaped bacteria are called spirilla.
Bacteria move around in many ways.
Some bacteria move using _____________ that they rotate to propel themselves through liquid environments. Other bacteria have a slimy layer on the outside that they use it slide over surfaces. Many types of bacteria do not have their own means of movement. Bacteria are simply carried by the movement of _______ or ________________. They can also be transferred from surface to surface. For example, when you touch a surface, bacteria are _______________ from that surface to your skin.

Bacteria get their food in many ways.
Photosynthetic bacteria _______________ their own food from sunlight and carbon dioxide, just like plants. Also like plants, they produce ________________. Cyanobacteria are examples of _______________ bacteria. Bacteria that live around volcanic vents or other harsh environments can make their own food without _______________. They use _______________ to produce their food instead of energy from the sun in a process called chemosynthesis. Other types of bacteria absorb food from the material they live on or in such as bacteria that break down _______________ organisms. Termites have bacteria in their stomach that absorb and break down cellulose. Cellulose is the compound that makes up wood, a termite’s favorite food. The bacteria help the termite get energy and nutrients from _______________.

Scientists have evidence that bacteria were the first organisms on Earth.
This evidence comes from fossils of single-celled prokaryotes found in rocks that are more than _______________ years old. At that time, there was little _______________ in the atmosphere. The earliest life was therefore anaerobic (Latin for “without oxygen”). Anaerobic bacteria do not require oxygen for cellular respiration. Today, _______________ bacteria thrive in places that have little or no oxygen, like swamps.

Bacteria increased oxygen in Earth’s atmosphere.
Over time, some bacteria developed the ability to use _______________. Cyanobacteria, still in existence today, were one of the first photosynthetic bacteria. One of the products of photosynthesis is oxygen. Over hundreds of millions of years, the amount of oxygen in Earth’s atmosphere increased allowing _______________ bacteria to develop. Aerobic bacteria use oxygen for _______________ respiration. There are many different species of aerobic bacteria living today.
Eventually, eukaryotic cells developed from bacteria.

A scientific theory states that long ago, smaller prokaryotic cells were engulfed by larger ____________________ cells. The smaller cells began to survive by living __________________ of the larger cells. Over time they took on specific functions inside the larger cells like producing __________________. Eventually, the smaller cells became the organelles (like __________________) inside of eukaryotic cells.

**Bacteria are used in many areas of industry.**

___________________ and cheese are made with certain types of bacteria. Some important drugs like __________________ are made with the help of bacteria. Sewage treatment plants use bacteria to break down __________________products. Other bacteria are used in mining and to clean up _______________ spills.

**Symbiosis**

Many kinds of bacteria have developed close relationships with other organisms. In many relationships the bacteria and the organism it lives with __________________. This type of symbiosis is called __________________. One species of bacteria lives in your intestines. You provide the bacteria with a warm, safe place to live; and in return, the bacteria help you break down and absorb certain compounds in foods. Bacteria even make some _______________ that your cells cannot make on their own.

**Bacteria are an important part of the nutrient cycles that all life depends upon.**

For example, plants need _______________ to make amino acids, the building blocks of protein. Bacteria in the soil take nitrogen out of the ________ and turn it into a form plants can use. When animals eat plants, they rearrange the amino acids into other proteins. When an organism dies, bacteria break down the dead material and turn it back into compounds that living things can use again. Bacteria are “nature’s _______________.”

**Bacteria cause diseases like strep throat, respiratory infections, and infected wounds.**

Bacterial diseases are treated with drugs called ________________,which kill bacteria without harming your own_______________. Different antibiotics are used for fighting different types of bacteria.

**How do bacteria reproduce?**

Bacteria, do not have a nucleus; their DNA is found bunched up in the cytoplasm. First the chromosomes are duplicated. Then, the bacteria reproduce by merely _______________ in two. This process is called binary _______________. Each daughter cell contains one copy of the DNA from the original cell.