# Biology

**EXPLORING BACTERIA**

**Name _____ Date: _____ Period: _____**

Materials

- Glass microscope slides
- Plastic cover slips
- Yogurt with live culture
- Toothpicks
- Paper towels or tissues
- Methylene blue solution (0.5 to 1%) Optional

Methods

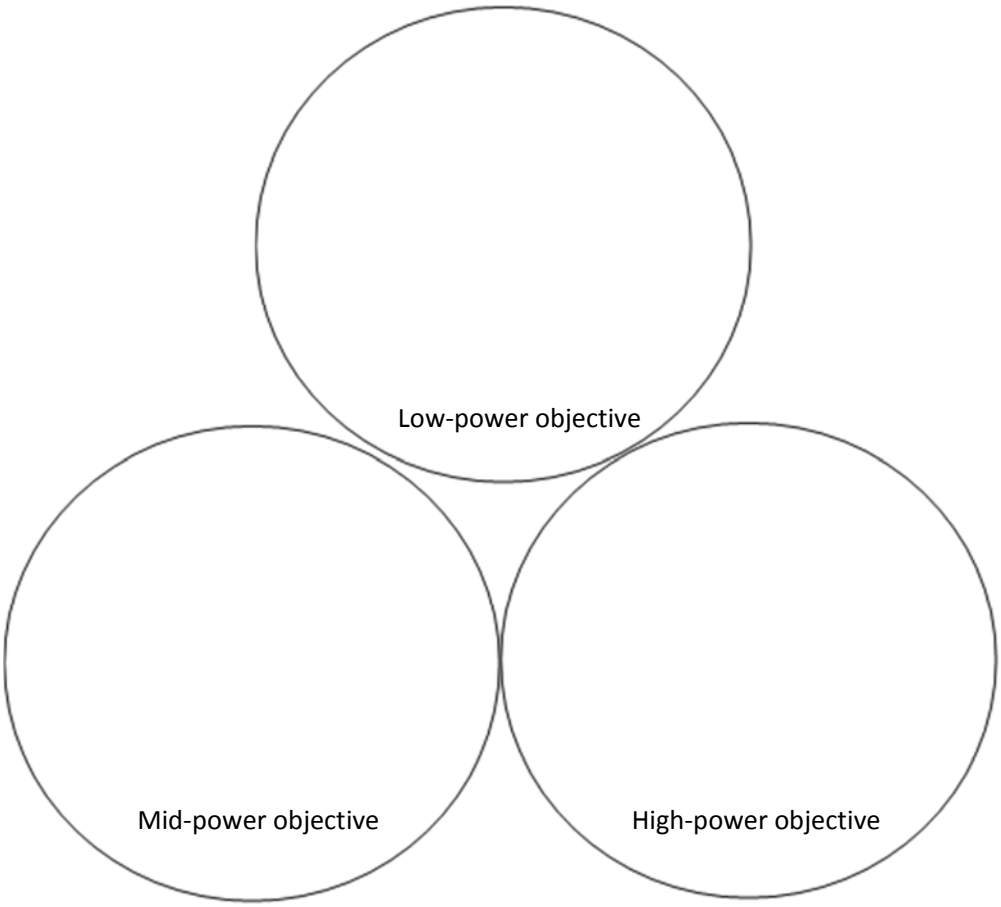
1. Take a very small drop of yogurt with the toothpick and smear it for 2 to 3 seconds on the slide.
2. Place a small drop of methylene blue solution on a microscope slide (optional). Wear gloves.
3. Place a coverslip on top. Remove excess solution around the coverslip with a paper towel or tissue.
4. View in the compound microscope at 4 x or 10 x initially, before moving to higher magnification. Bacteria will appear small even at the highest magnification.
5. Answer the question at the back of this sheet
6. NOTE: Step 2 is optional. You will be able to see the bacteria even without using the stain.

Bacteria

Bacteria can be found isolated, in pairs (diplo), in clusters or in threads (strepto), and they can have different shapes like rods (bacilli), sphere (coccus) etc.

Yogurt is made from the fermentation of the lactose in milk by the rod-shaped bacteria Lactobacillus delbrueckii subsp. bulgaricus to produce lactic acid, which acts on milk protein to give yoghurt its texture and its characteristic acidic taste. Other bacteria found in yoghurt are Lactobacillus acidophilus or casei, Streptococcus salivarius subsp. thermophilus and Bifidobacterium bifidus.

1. Draw the organisms you have identified under different magnification




2. Based from the structures of bacteria you have identified, classify it according to its shape.

   _____

3. If the culture contained two different types of bacteria, Lactobacillus and Pediococcus, is it possible to distinguish the two? Explain.

   _____
   _____

4. What is the difference in appearance between cells that are considered to be Gram positive and those that are considered to be Gram negative?

   _____
   _____

5. Why do doctors need to identify if bacteria are Gram positive or Gram negative?

   _____
   _____

6. What benefits can we get from bacteria? Explain.

   _____
   _____
   _____

# Biology

**QUIZ 3: KINGDOM ARCHAEBACTERIA AND EUBACTERIA**

**Name _____ Period: 1**

***MULTIPLE CHOICES***
Identify the letter of the choice that best completes the statement or answers the question. Write the letter ***before*** the number.

1. What kinds of drugs are used to kill bacteria?
    A. Pesticides
    B. Antibiotics
    C. Flu shots
    D. Antiprotozoal

2. Through what asexual process can bacteria reproduce?
    A. Fusion
    B. Mitosis
    C. Binary fission
    D. Conjugation

3. What are flagella?
    A. Whip-like strands that help bacteria move
    B. Another name for the nuclear material inside a bacterial cell
    C. A type of bacteria that lives inside a cow's stomach
    D. Microscopic hair-like structures

4. Bacteria are:
    A. Prokaryotic
    B. Eukaryotic
    C. Bombastic
    D. Plastic

5. Bacteria can exchange genetic material in a process similar to sexual reproduction called:
    A. Fusion
    B. Meiosis
    C. Conjugation
    D. Binary Fission

6. The microorganisms living in extreme conditions particularly to very salty lakes and seas are called:

A. Halophiles
B. Methanogens
C. Thermophiles
D. Acidophiles

7. You were excited to see the snow because it's winter season, but when you went outside the house, you saw red-colored snow on the ground. This phenomenon might be the doing of a/an:
    A. Methanogen
    B. Thermoacidophiles
    C. Archaebacteria
    D. All of the above

8. Gram staining helps medical professionals create medicine to kill harmful bacteria. Gram positive microbes are special because:
    A. They have a rigid cell wall
    B. They are pink under gram staining
    C. They have a peptidoglycan layer
    D. They have flagella and/or cilia/pilli

9. When a bacteria attacks your body, you wouldn't immediately feel the disease it might bring about. This is because you have natural killer cells against bacteria known as:
    A. Red blood cells
    B. White blood cells
    C. Platelets
    D. Nerve cells
10. All of the following are bacteria EXCEPT:
    A. *Mycobacterium tuberculosis*
    B. *Clostridium tetani*
    C. *Rhabdovirus*
    D. *Escherichia coli*

***SIMPLE RECALL***

Fill in the blanks with the appropriate words from the clues provided. ***Misspelled words will be marked incorrect.***

1. The spherical shape of bacteria is known as_____
2. The spiral shape of bacteria is known as_____
3. The rod shaped bacteria are known as_____

4. There are two domains for bacteria, _____ and _____.

5. Ancient prokaryotes that can survive in extreme living conditions are known as _____.

6. Bacteria can move using _____, or _____.

7. Bacteria reproduce by themselves with a process called _____.

8. A process called _____ allows you to distinguish between different bacterial cells by looking at the cell wall. The process involves two dyes, if the bacteria turns purple it is _____ and if it turns pink it is_____.

9. Define:
    a. obligate anaerobe

    b. obligate aerobe

    c. facultative anaerobe

**Identify the following bacteria:**

_____

_____

_____

_____

_____