

Advanced Biology

NTI Day 2: BACTERIA

Make a copy, and add your name, then share or print!

I. BASIC STRUCTURE AND CHARACTERISTICS OF BACTERIA (PROKARYOTES)

- 1) First, on a separate sheet, sketch or paste an illustration of a basic, typical bacterium (prokaryotic cell) with all structures labeled.

BTW, this one video below may be helpful on ALL the other components of this task, except for infections at the end.

<https://www.youtube.com/watch?v=h-z9-9OOWC4>

- 2) Next, discuss the variations of bacterial structure in terms of the various A) shapes (round, rod, spiral) and B) clustered arrangements (chains, clusters) of the cells. Draw or attach an illustration contrasting these variations.

Scroll to 3:25 on the video linked below, and begin watching.

<https://www.youtube.com/watch?v=3lOZOGkq97c>

- 3) Gram Staining: Gram staining is also used for structural identification of bacterial. Use the video below to discuss an overview of Gram staining, how it impacts the cell walls of infectious bacteria, and the outcome and results to expect from the + and – variations.

<https://www.youtube.com/watch?v=Jvo6IGKTvxA>

II. BACTERIAL ENERGY AND REPRODUCTION

- 1) Discuss 2 basic methods that bacteria use to obtain energy (Bacterial Metabolism): respiration vs. fermentation. Discuss how each of these occurs in bacteria.

<https://www.khanacademy.org/science/biology/cellular-respiration-and-fermentation/variation-s-on-cellular-respiration/a/fermentation-and-anaerobic-respiration>

- 2) Sketch, label, and discuss the advantages for the two method of bacterial reproduction. (BF, C)

Only focus on the first two in the video below.

https://www.youtube.com/watch?v=7sZ5Nz8_cfc

Another more detailed video: <https://www.youtube.com/watch?v=R5WrU72Ja4A>

III. VARIOUS COMMON BACTERIAL INFECTIONS (MODES OF INFECTION & SYMPTOMS)

1) Fill in the table below regarding the mode of infection and symptoms of some bacterial infections.

CHOOSE ANY FIVE!

Bacteria Infection	Mode of Infection	Symptoms & Body Section Affected
Gangrene		
Impetigo		
Tuberculosis (TB)		
Scarlet Fever		
Helicobacter Pylori		
Tetanus		
Otitis		
Urinary Tract Infection (UTI)		
Cellulitis		
Gonorrhea		

3) Antibiotics are the most common method of treatment for bacterial infections, although often one may not need them when the body's natural defense (white blood cells) will fight off the infection automatically. Discuss the problem, cause and solution of the rise of drug resistant strains of bacteria in the world.

PROBLEM –

CAUSES –

SOLUTIONS/REDUCTION -