

### Classification, Viruses and Bacteria Study Guide

For each “card”, try to fit your answers to each bullet onto one side of a piece of lined paper. These cards will serve you during your revision for the microbiology unit test. Our unit test will cover chapters 7 and 8 from the textbook, in addition to everything he have covered since we wrapped up the immune system. The immune system will not be included on this unit test.

#### Card 1: Viruses

- Explain why viruses may be classified as living or non-living.
- Explain why it is difficult to establish the origin of viruses and the most widely accepted view of the origin of viruses.
- Draw and label a typical virus.
- Describe the steps of a virus ‘life’ cycle including the difference between latent (hidden) and virulent (active) viruses. You might want to include diagrams that match these steps.
- Explain what is meant by viral specificity.

#### Card 2: Classification

- Name the 3 domains of the tree of life and list the kingdoms within each domain.
- Explain the difference between prokaryote and eukaryote cells.
- Given the dichotomous name of an organism (example: *Clostridium botulinum* or *Homo sapiens*), determine the genus and species groupings for this organism.
- Name the 7 levels of classification
- Understand and explain the following terms: taxonomy, phylogeny, binomial nomenclature

#### Card 3: Science Processes

- Describe the starting point for scientific inquiry (question and hypothesis).
- Describe the difference between independent, dependent and controlled variables.
- Describe the difference between an experimental and control group.
- Given data, produce an appropriate graph with labeled X and Y axis.
- Draw conclusions based on data (understanding experimental error, confidence in data and role of control group as comparison).

#### Card 4: Bacteria – general characteristics

- Describe the characteristics common to bacteria.
- Describe bacterial types by shape (cocci, bacilli, spirillum).
- Describe differences in bacterial requirements for life (obligate aerobes, obligate anaerobes, facultative anaerobes, fermentation)
- Identify and draw the bacterial structures visible under electron microscope.
- Describe the difference between symbiotic and non-symbiotic bacteria.
- How do bacteria consume nutrients? Why are bacteria considered decomposers?

#### Card 5: Bacteria - reproduction

- Describe how bacteria reproduce by binary fission and conjugation.
- Describe how binary fission, conjugation and endospores help bacteria survive.
- Describe lag phase, growth phase and death phase associated with bacterial growth rates

#### Card 6: Bacteria – good and bad

- Name 2 diseases caused by bacteria and define the term pathogenic bacteria.
- Describe 3 ways that bacterial growth can be controlled.
- Describe how one of the following antibiotics ‘kills’ bacteria – erythromycin or penicillin.
- Describe 1 way that bacteria can become resistant to antibiotics and why this could be dangerous.
- Describe what is meant by the phrase “survival of the fittest” as it pertains to bacteria.
- Describe why cattle might be feed antibiotics and why this might be a concern for humans.

#### Chapter 7 Review

- Read pages 196-212
  - o Complete review questions
- Textbook page 213
  - o Applying Concepts #1-11
  - o Critical Thinking #2-4

#### Chapter 8 Review

- Read pages 214-235
  - o Complete review questions
- Textbook page 236
  - o Applying Concepts #1-14
  - o Critical Thinking #1 and 5