

Session 1 - Foundations of Microbiology

Text:	Chapters 1, 2, 3
Anticipated time:	2 class periods
Basic Objectives:	You should develop a perspective on the historical development of microbiology, and understand its role in contemporary biomedicine. You should be able to discuss the contributions of the major scientists discussed in class. You should understand the biological nature of 'microorganisms' and the diversity of microorganisms. You should understand basic principles of chemistry, especially biochemistry. You should be able to discuss the basic principles of microscopy, the diversity of types of microscopes used by microbiologists, and how specimens are prepared for viewing.
Slides to Copy:	1, 2, 3, 7, 10, 14, 18, 19, 21, 22, 32, 33

Chapter 1 – Humans and the Microbial World

Introduction	<i>Review.</i> Define: Emerging disease, Obligate intracellular parasite, pathogen, biotechnology, genetic engineering and spontaneous generation.
1.1 The Origin of MO's	<i>Read.</i> Understand spontaneous generation & the work of Pasteur. <i>Review</i> Fig 1.1.
1.2 Microbiology: A Human Perspective	
Introduction	<i>Read. Review</i> Tab 1.1.
Vital Activities of...	<i>Read.</i>
Applications of...	<i>Read.</i> Define: Biotechnology.
Medical Microbiology	<i>Read carefully.</i> Understand the concept of Emerging Diseases. <i>Review</i> Fig 1.4.
Microorganisms as...	<i>Read.</i>
1.3 The Microbial World	
Introduction	<i>Read.</i>
The Bacteria	<i>Read carefully.</i>
The Archea	<i>Read.</i>
The Eucarya	<i>Read carefully.</i> Understand Tab 1.2. <i>Read</i> Tab 1.3.
Nomenclature	<i>Read.</i>
1.4 Viruses, Viroids, Prions	<i>Read carefully. Review</i> Fig 1.12 and Tab 1.4.
1.5 Size in the Microbial...	<i>Review,</i> including Fig 1.13. <i>Read</i> Perspective 1.1.
Future Challenges	<i>Read.</i>

Chapter 2 - The Molecules of Life

Entire chapter	<i>Skip.</i> However, if you are less than confident of your abilities in chemistry, it would be wise to <i>Review</i> the chapter and <i>Read very carefully</i> the Summary.
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Chapter 3 – Microscopy and Cell Structure

Introduction	<i>Read.</i> Define: All the Key terms.
3.1 Microscopic Techniques: The Instruments	
Introduction	<i>Read. Review</i> Tab 3.1.
Principles of Light...	<i>Read.</i> Define: Contrast, magnification and resolution.
Light Microscopes...	<i>Read.</i> Understand the uses of the various microscopes. Look at the pictures.
Electron Microscopes	<i>Read.</i> Understand the uses of electron microscopes. <i>Read</i> Fig 3.9 and compare light and electron microscopes.
Scanning Probe...	<i>Review.</i>

3.2 Microscopic Techniques: Dyes and Staining

Introduction

Read, including Tab 3.2.

Differential Stains

Read. Understand the important use of the Gram Stain. *Read* Fig 3.14.

Special Stains

Read. And look at the pictures.

Fluorescent Dyes...

Read.