

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>
1.1 The Dispute Over Spontaneous Generation	<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.</i> <i>Review</i> Fig 1.2 for perspective.
Vital Activities	<i>Read.</i>
Applications	<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 Living Members of the Microbial World	
Introduction	<i>Read.</i>
Diversity	<i>Read.</i>
Bacteria	<i>Read carefully.</i>
Archaea	<i>Read.</i>
Eucarya	<i>Read carefully.</i> <i>Read</i> Tabs 1.1 & 1.2.
Nomenclature	<i>Read.</i>
1.4 Non-Living Members of the Microbial World	<i>Read carefully.</i> <i>Review</i> Fig 1.9 and Tab 1.3.
1.5 Size in the Microbial World	<i>Review</i> , including Figs 1.12 & 1.13.
Perspective 1.1.	<i>Read.</i>
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>
3.1 Microscopic Techniques: The Instruments	
Introduction	<i>Read.</i> Understand Tab 3.1.
Principles	<i>Read.</i> Define: Contrast, magnification and resolution.
Light Microscopes	<i>Read.</i> Understand the uses of the various microscopes. OK: Look at the pictures.
Other Microscopes	<i>Read.</i>
Electron Microscopes	<i>Read.</i> Understand the uses of electron microscopes. <i>Read</i> Fig 3.9 and compare light and electron microscopes. More pictures.
Atomic Force	<i>Review.</i>
3.2 Microscopic Techniques: Dyes and Staining	
Introduction	<i>Read</i> , including Tab 3.2.

Differential Staining
Special Stains
Fluorescent Dyes

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

Read. More pictures.

Read.