

The Living Book of **Biology**



INTRODUCTION TO BIOLOGY

LESSON 6: USING THE MICROSCOPE

SEEING THE INVISIBLE WORLD



1 Why We Need Microscopes



Too Small



Magnify



See Cells



See Microbes

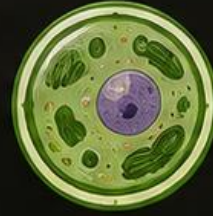


Understand Life

Too small
to see



Visible with
microscope



Microscopes reveal

- ☒ Cells
- ☒ Bacteria
- ☒ Tissues
- ☒ Tiny structures



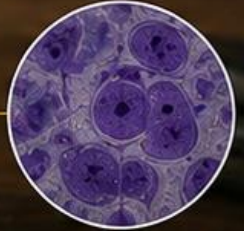
Microscopes open a hidden world.



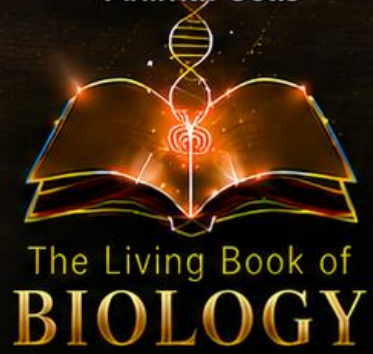
Plant Cells



Bacteria



Animal Cells



2 The History of the Microscope



400+ Years



First Microscopes



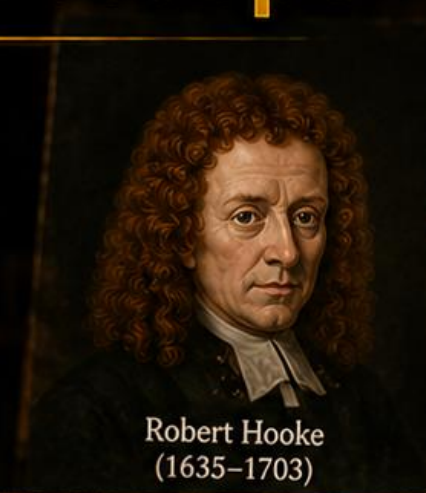
Robert Hooke



Antonie van Leeuwenhoek



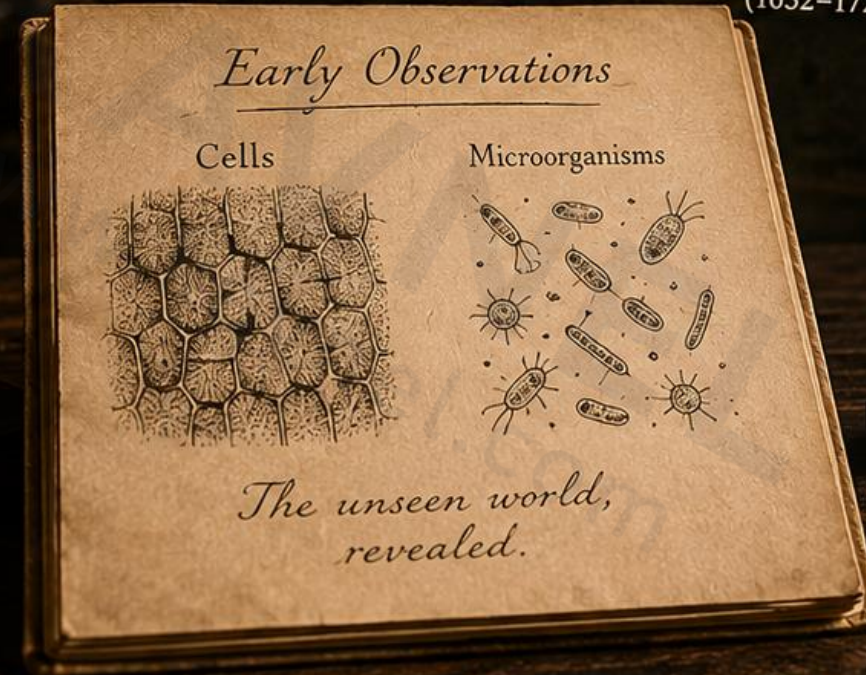
Changed Biology



Robert Hooke
(1635–1703)



Antonie van Leeuwenhoek
(1632–1723)



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3

Parts of a Compound Light Microscope



Eyepiece



Objective Lenses



Stage



Light Source



Coarse Adjustment Knob



Fine Adjustment Knob



4

Magnification and Resolution



Magnification



Resolution



Both Matter



See Fine
Details



Clear Images

MAGNIFICATION

Makes objects appear larger.



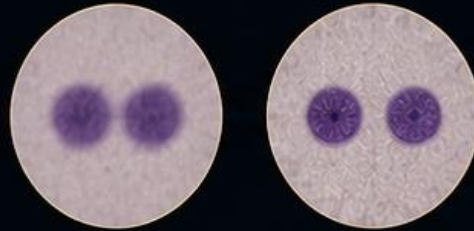
40x

100x

400x

RESOLUTION

Determines how clearly two close points can be seen as separate.



Low Resolution

High Resolution

THE BEST VIEW

High magnification + High resolution

=

See the true details of life.



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5

Using a Microscope Correctly



Start Low Power



Adjust Light



Focus Carefully



Increase Magnification



Handle with Care



Record Observations



Start with the lowest power.



Adjust the light.



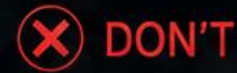
Use coarse then fine focus.



Move to higher magnification if needed.



Record your observations.



DON'T

Use high power first.



DO

Handle gently and keep clean.



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6

Microscopes Changed Biology



Discovered
Cells



Identified
Microorganisms



Revealed
Viruses



Studied
DNA



Observed
Living Cells

FROM SIMPLE LENSES TO MODERN IMAGING

Microscopes continue to open new frontiers
in the study of life.



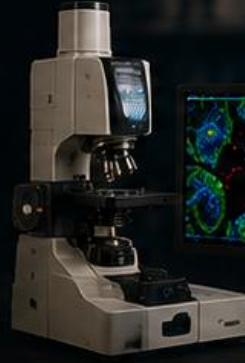
1600s



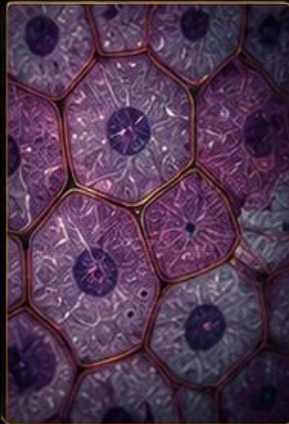
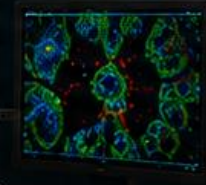
1800s



1900s



Today



Cells



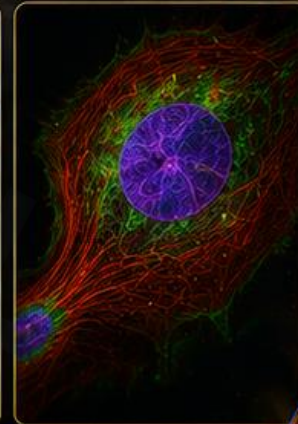
Microorganisms



Viruses



DNA



Living Cells



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Microscopes reveal the invisible and drive discovery.



Summary



Essential Tool



Reveal the Invisible



Built for Discovery



Use with Care



Transform Biology



Microscopes magnify the tiny and reveal the hidden—
expanding our knowledge of life.



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