

## Tools of the BIOLOGIST Notes

Microscopes: A tool used to

### Light microscopes

-Use rays of light, either \_\_\_\_\_ a thin slice or section or \_\_\_\_\_  
of a specimen.

Dissecting aka \_\_\_\_\_

- \_\_\_\_\_ source \_\_\_\_\_ stage – Light bounces off of specimen.
- Can be used with \_\_\_\_\_.
- Two \_\_\_\_\_ allow for \_\_\_\_\_, \_\_\_\_\_ image.
- No \_\_\_\_\_

Phase Contrast

- Uses \_\_\_\_\_ light to give good contrast.
- No \_\_\_\_\_ necessary
- Used on \_\_\_\_\_ specimens
- \_\_\_\_\_ specimens.

### Electron Microscopes:

-Use \_\_\_\_\_ rather than beams of \_\_\_\_\_

-Gives \_\_\_\_\_ and excellent \_\_\_\_\_

Transmission

- Electron beams pass  
\_\_\_\_\_ specimen

*Define resolution here if needed:*

Scanning

- Electron beams \_\_\_\_\_ specimen

How does a person eat an elephant?

Science is often \_\_\_\_\_ or \_\_\_\_\_

This means it \_\_\_\_\_ complex problems into \_\_\_\_\_ parts.

\_\_\_\_\_ the parts and you will understand the \_\_\_\_\_

Speaking of breaking things down...

## Separation Techniques

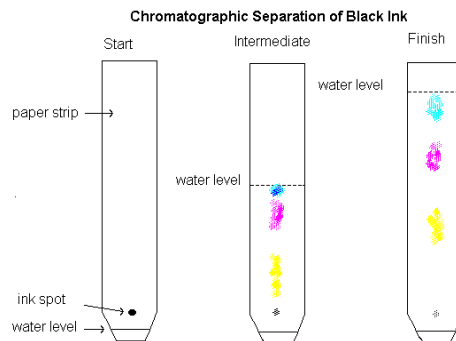
-Separate \_\_\_\_\_ of \_\_\_\_\_ for \_\_\_\_\_.

### Centrifuge

- Used to \_\_\_\_\_ a suspension to \_\_\_\_\_ the particles based on their \_\_\_\_\_.
- \_\_\_\_\_ to the bottom, \_\_\_\_\_ on top

### Chromatography

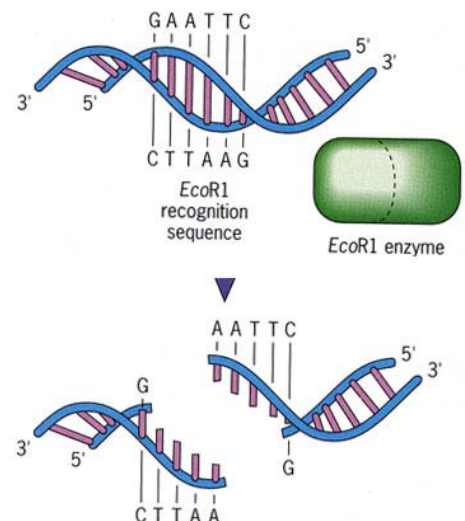
- The process of \_\_\_\_\_ solutions of chemicals based on how fast the differently \_\_\_\_\_ molecules travel through special \_\_\_\_\_.

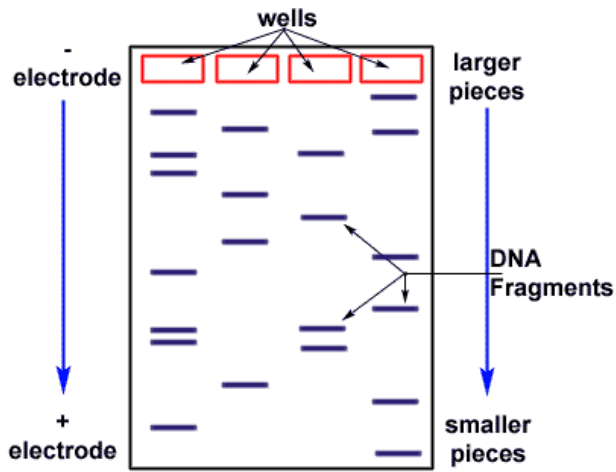


### Electrophoresis

- A process that is used to \_\_\_\_\_ pieces of \_\_\_\_\_ by placing the DNA in a special \_\_\_\_\_ and adding \_\_\_\_\_.

- First, the strand of \_\_\_\_\_ is \_\_\_\_\_ into several pieces using special \_\_\_\_\_





- The mixture of DNA \_\_\_\_\_  
Is loaded into the \_\_\_\_\_ of the gel.
- When \_\_\_\_\_ is put through  
the gel, the DNA \_\_\_\_\_ are  
sorted by \_\_\_\_\_.

## Other Tools and Techniques:

### Indicators:

- Compounds that show \_\_\_\_\_, usually by a \_\_\_\_\_ change.
- \_\_\_\_\_ to use
- examples:

### Tissue Cultures

- Growing \_\_\_\_\_ outside the \_\_\_\_\_
- Example: \_\_\_\_\_ is grown outside the body to help burn victims
- One day many organs may be grown for \_\_\_\_\_
- \_\_\_\_\_ alternative to \_\_\_\_\_

### Microdissection

- Using very \_\_\_\_\_ tools to dissect \_\_\_\_\_ as small as individual \_\_\_\_\_
- This technique is used when \_\_\_\_\_ cells or \_\_\_\_\_.

### Other Diagnostic Tools

- CAT scans
- MRI
- PET