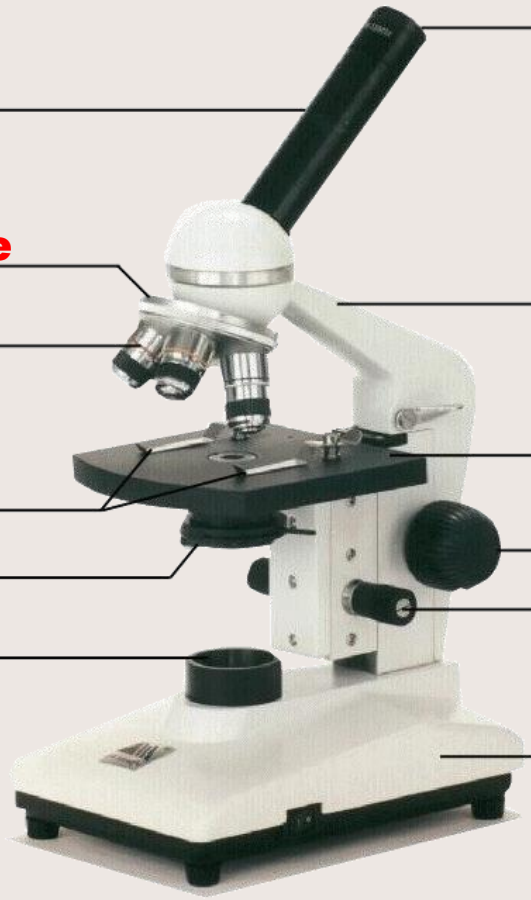
Introduction to the Microscope

- Care
- Parts
- Focusing
- Scientific Drawings

Microscope Care

- Always carry with 2 hands in front of your body
- Only use lens paper for cleaning
- Do not force knobs
- Turn off microscope before unplugging
- Always store covered

Microscope Parts



Microscope Parts

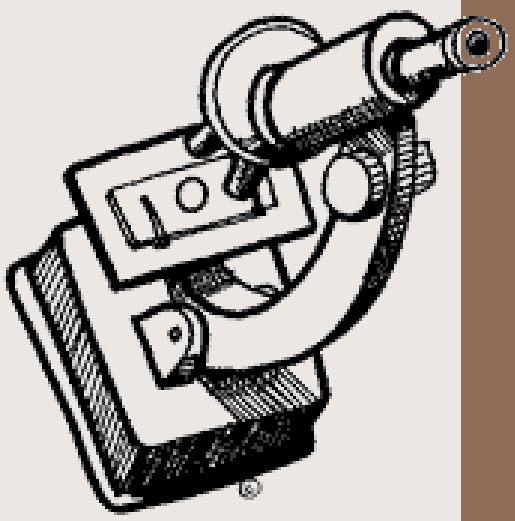
- Eyepiece- contains a 10X lens
- Nose piece- A rotating head that has the objective lenses attached to it.
- Objectives- a casing for a lens
  - High (40x) and Low-Power (4x and 10X).
  - Multiple the objective by the eyepiece to get total magnification.
    - Ex. 40x * 10x = 400 total magnification
- Stage and stage clips- The specimen slides rests on the stage and the stage clips hold the slide in place

Microscope Parts

- Diaphragm- controls the amount of light
  - Located under the stage
- Course adjustment knob- The larger of two sets of knobs located on either side of the arm, just above the base
  - Focuses image by adjusting the distance of the object to the lens
  - Use to focus images under low magnification
- Fine adjustment knob- The smaller of two sets of knobs located on either side of the arm.
  - Makes small adjustments in distance for images under high magnification

Using the Microscope

- Place the Slide on the Microscope
- Use Stage Clips to secure slide
- Rotate the nosepiece to the lowest (shortest) magnification (4x)
- Look into the Eyepiece
- Use the Coarse Adjustment knob to find your specimen
  - Turn coarse adjustment knob to raise the stage all the way up to the objective
  - Slowly lower it to locate specimen



Using the Microscope

Want to go in closer?

- Follow steps to focus using low power
- Rotate the nosepiece to the middle objective (10x)
- Use the Coarse adjustment knob to find your specimen
- Use the Fine Focus Knob to bring the image into focus

Using the Microscope

Want to get even closer?

- Follow the steps to focus using 4x and then 10x
- Rotate the nosepiece to the longest objective (40x)
- Do NOT use the coarse adjustment knob
- Focus by using the fine adjustment knob

Using the Microscope

Why can't I begin on the highest magnification? Why do I still have to start at 4x?

You can't zoom in on your specimen until you know exactly where it is on the slide.

Think about when you "google a map…"

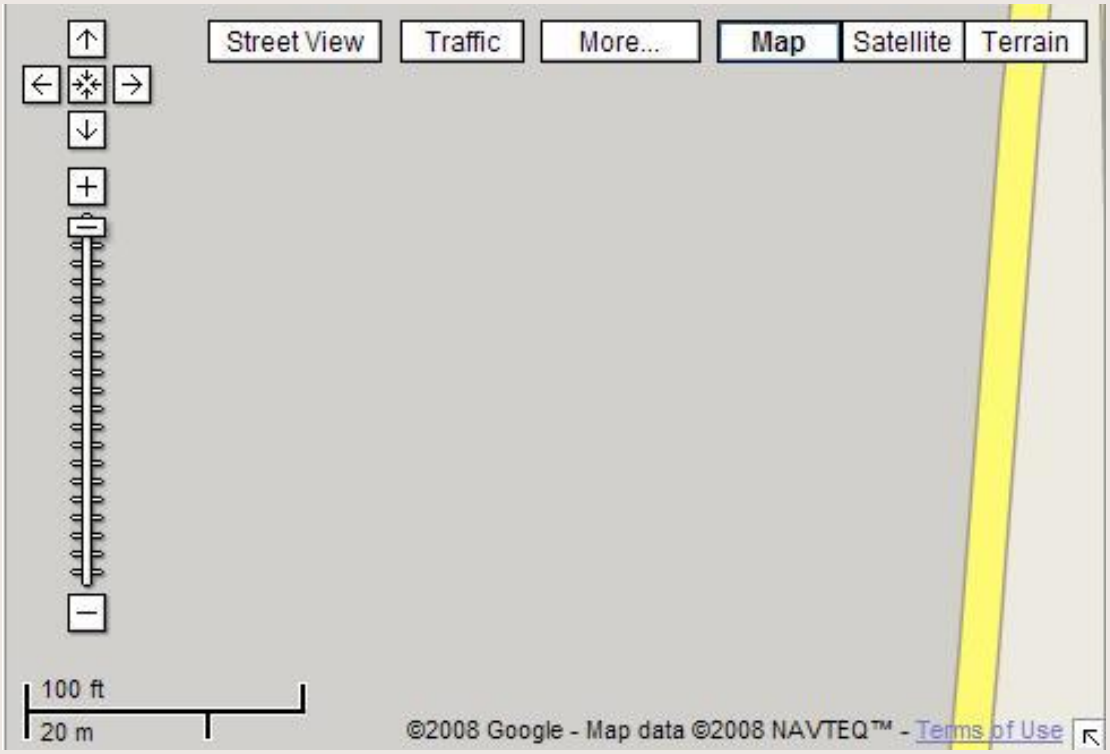
Using the Microscope

- You Google the location of Stonebriar Mall:
  - 2601 Preston Rd

    Frisco, Texas 75031
- Instead of starting at 4x you start at 40x

Using the Microscope

The equivalent to 40x on your google map is this:



Does that help you locate the mall?

It doesn’t help you when using a microscope, either

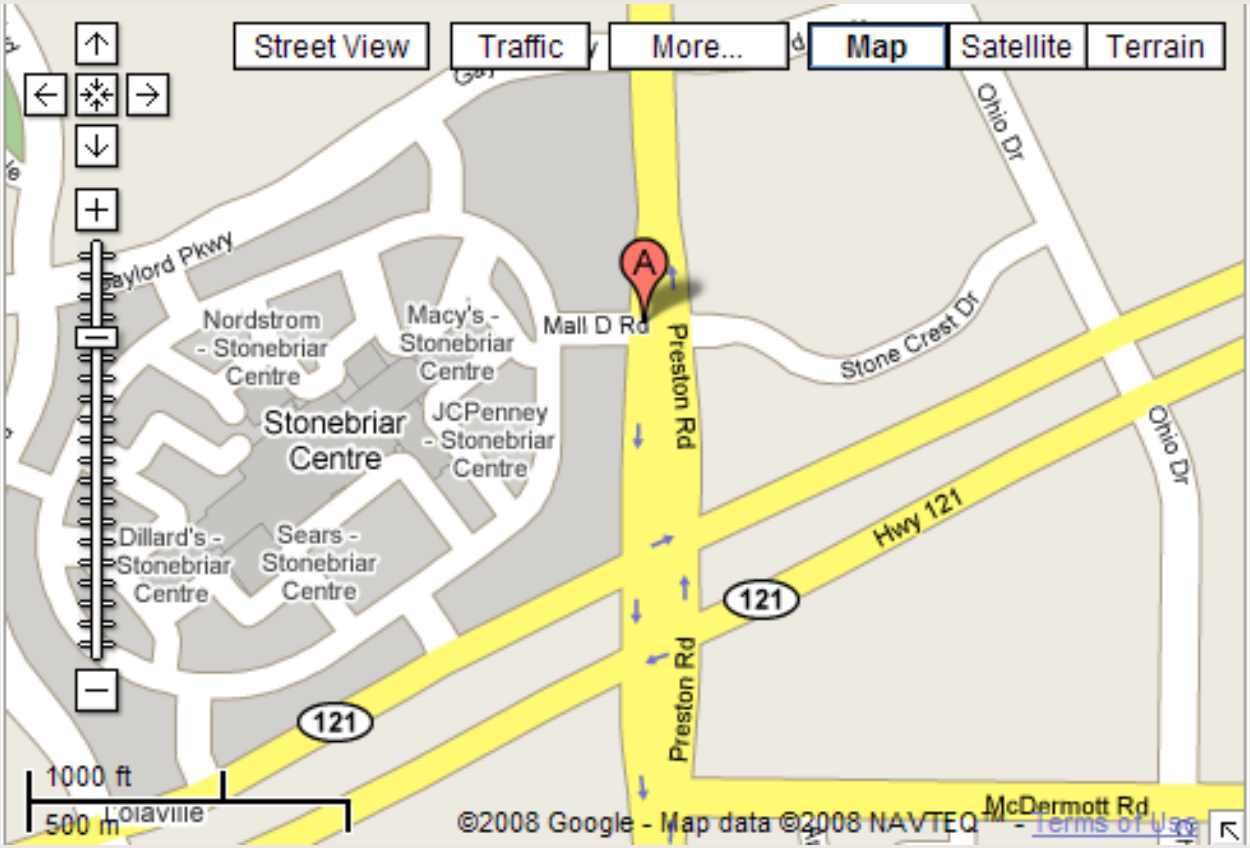
Using the Microscope

So, start at 4x (google equivalent of 4x):

You now have the big picture to look at

Using the Microscope

- Then, move on to 10x (google equivalent to 10x):



Now you can zoom in to look at those details

Using the Microscope

- Once you know where you are, this is the google equivalent to 40x:

Scientific Drawings

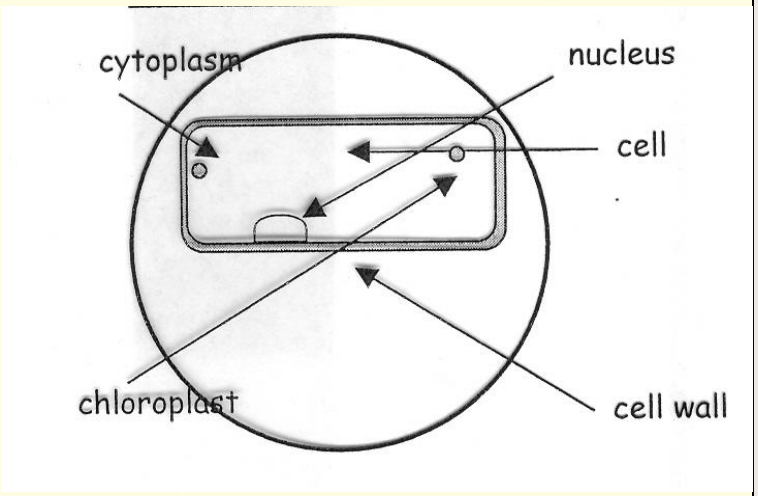
- Draw a circle to represent the field of view
- Make your drawing to scale
- The name of the specimen should be centered and underlined at the top of the drawing
- The magnification should be centered below the drawing
  - Remember, multiply the power of the eyepiece lens by the power of the objective lens

Scientific Drawings

- Lines for labels need to extend from the drawing to the right
  - Should be parallel and end at the same point on the page
  - Drawn with a ruler
- Labels are printed beside the line, not above it

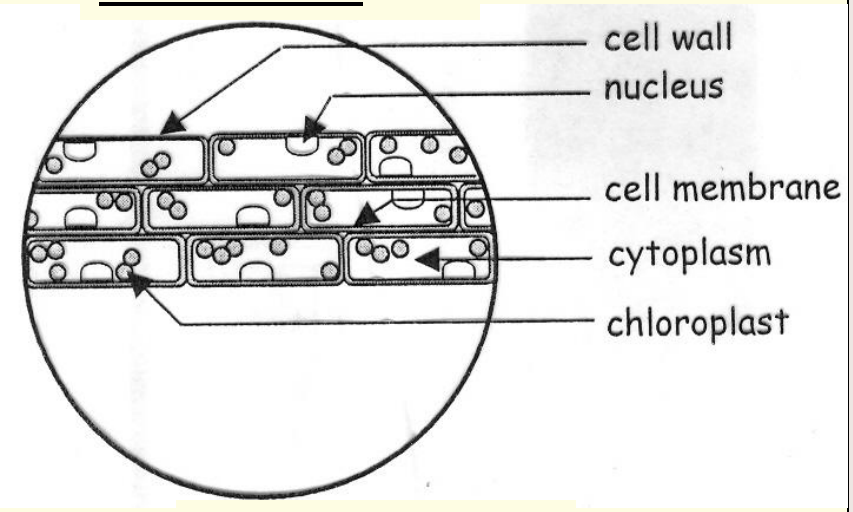
Scientific Drawings

Incorrect Scientific Drawing:



- Correct Scientific Drawing:

Anacharis



40x