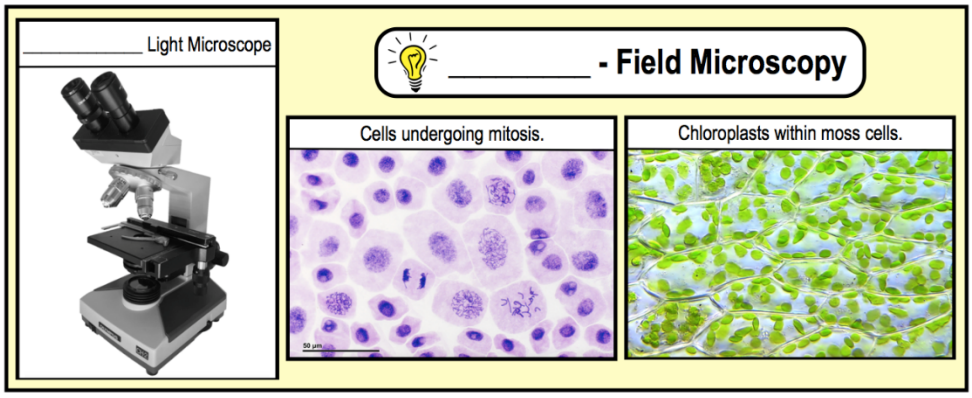
CONCEPT: LIGHT MICROSCOPY: BRIGHT-FIELD MICROSCOPE

●**Bright-Field Microscope**: the *most common* type of light microscope that generates a _____ background.

□ Routinely used to examine both *stained* & *unstained* specimens, forming a darker image on a lighter background.

□ *Drawback*: unstained transparent organisms create _____ contrast (staining procedures may kill organisms).

□ ***Compound*** **Light Microscope**: one of the most commonly used bright-field microscopes using _____ lenses.

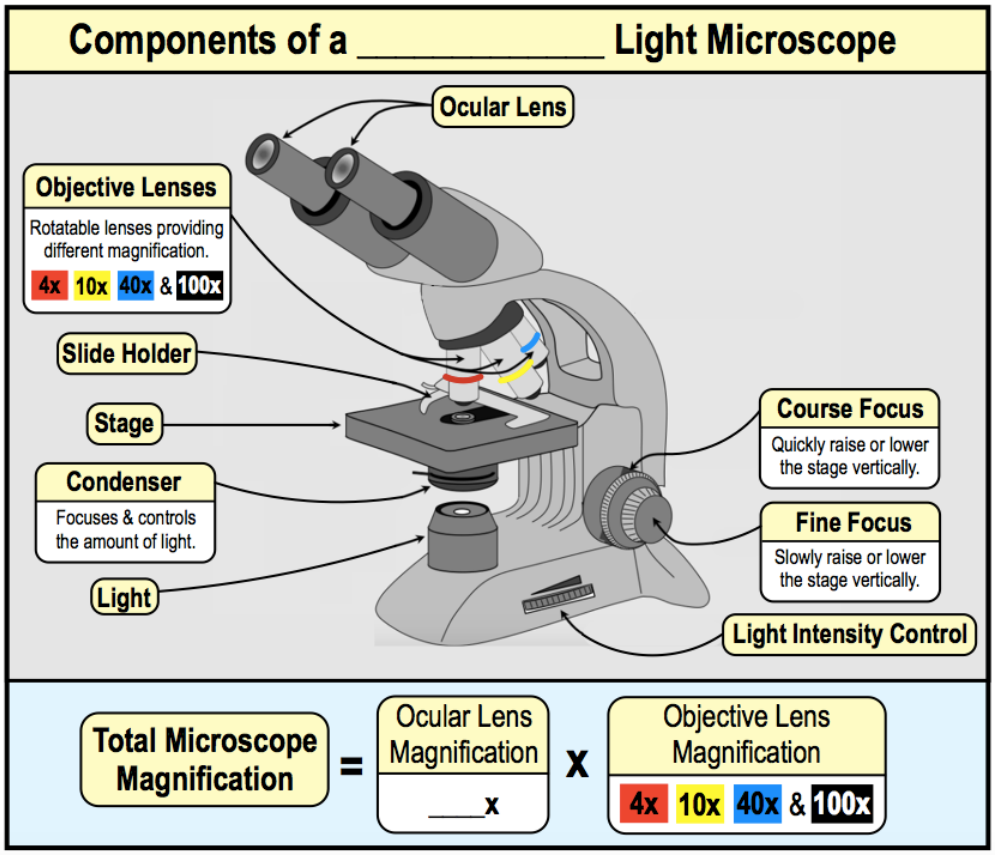


Components & Magnification of the Compound Light Microscope

●The compound light microscope has *several* components that you likely need to be familiar with.

□ Light passes via _____ lenses (objective lens & ocular lens), each which provides additional magnification.

□ **Total magnification** of the specimen is the _____ of the magnification provided by each lens.



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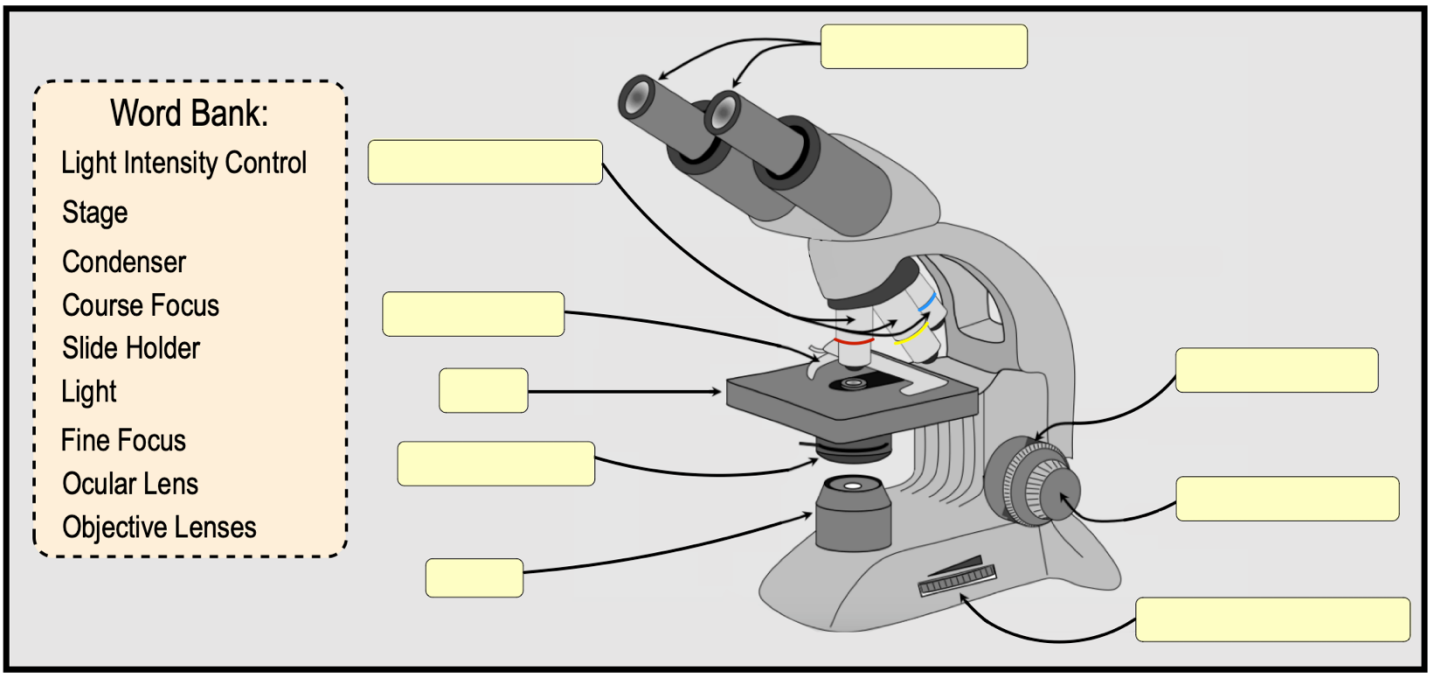
EXAMPLE: Complete the following diagram by labeling each part of the compound microscope:



PRACTICE: The two magnifying lenses found in a light microscope are the:

a) Basic and transverse lenses.

b) Small and large lenses.

c) Ocular and objective lenses.

d) Simple and phase lenses.

PRACTICE: What is the purpose of the condenser on a light microscope?

a) Allows the viewer to change light intensity.

b) Focuses the light beam and controls the amount of light hitting the specimen.

c) Moves the microscope slide from left to right.

d) Focuses the image magnified by the objective lens.

e) Magnifies the microscopic specimen up to 100x.

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PRACTICE: What is the most common type of light microscope? And how does it work?

a) Dark-field microscope; shows brightly lit specimens on a dark background.
b) Light-field microscope; shows brightly lit specimens on a dark background.
c) Bright-field microscope; shows a darker specimen on a brightly lit background.
d) None of the above.

PRACTICE: What is the major drawback to bright-field microscopes?

a) Unstained microorganisms that are transparent are very difficult to see with bright-field microscopes.
b) Bright-field microscopes cannot be used to examine stained microorganisms.
c) The intensity of the light used to create the bright background in bright-field microscopes cannot be changed.
d) Bright-field microscopes are some of the most expensive microscopes used to visualize microorganisms.

PRACTICE: The knobs used for focusing the image on a compound light microscope are the:

a) Fine & capture knobs.
b) Course & tip knobs.
c) Stage & course knobs.
d) Course & fine knobs.

PRACTICE: Which part of a compound microscope has the shutter that focuses & controls the amount of light?

a) The condenser.
b) The eyepiece.
c) The stage.
d) Fine adjustment knob.