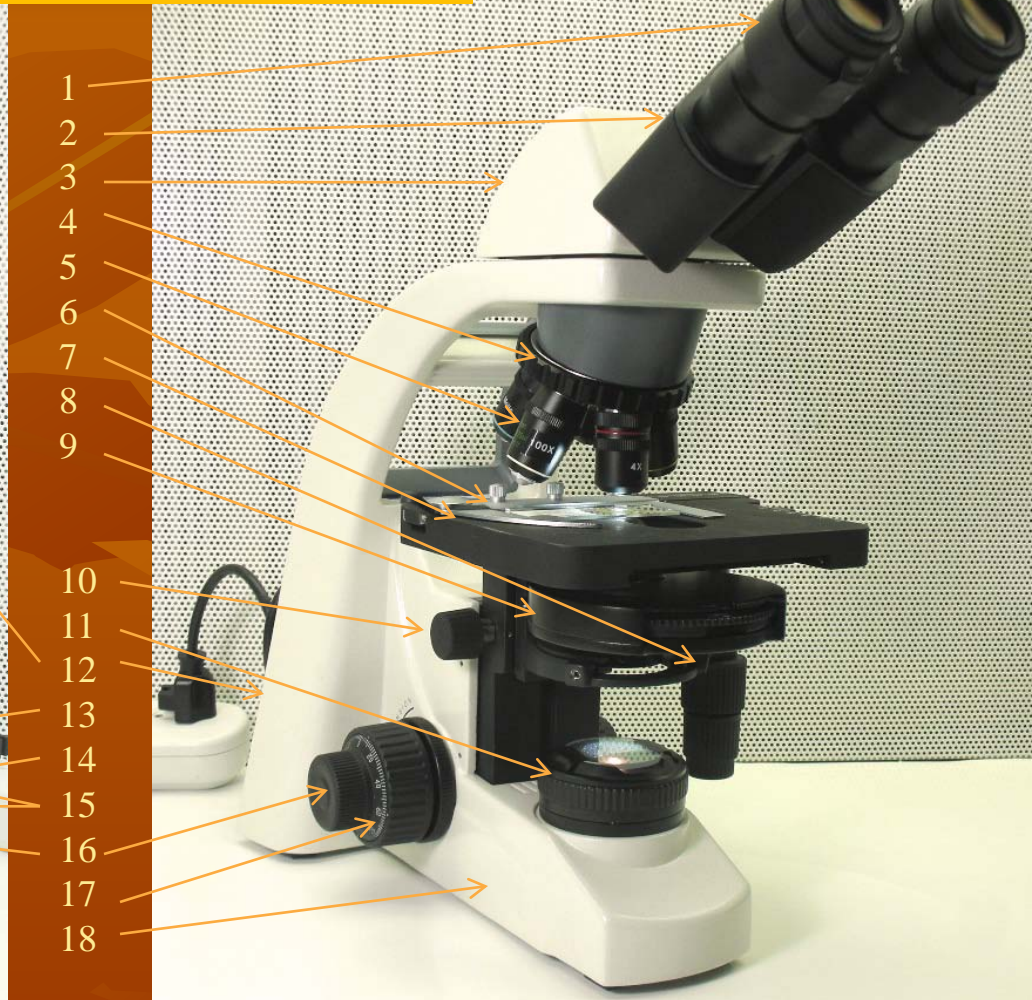


Compound microscope (Hund)



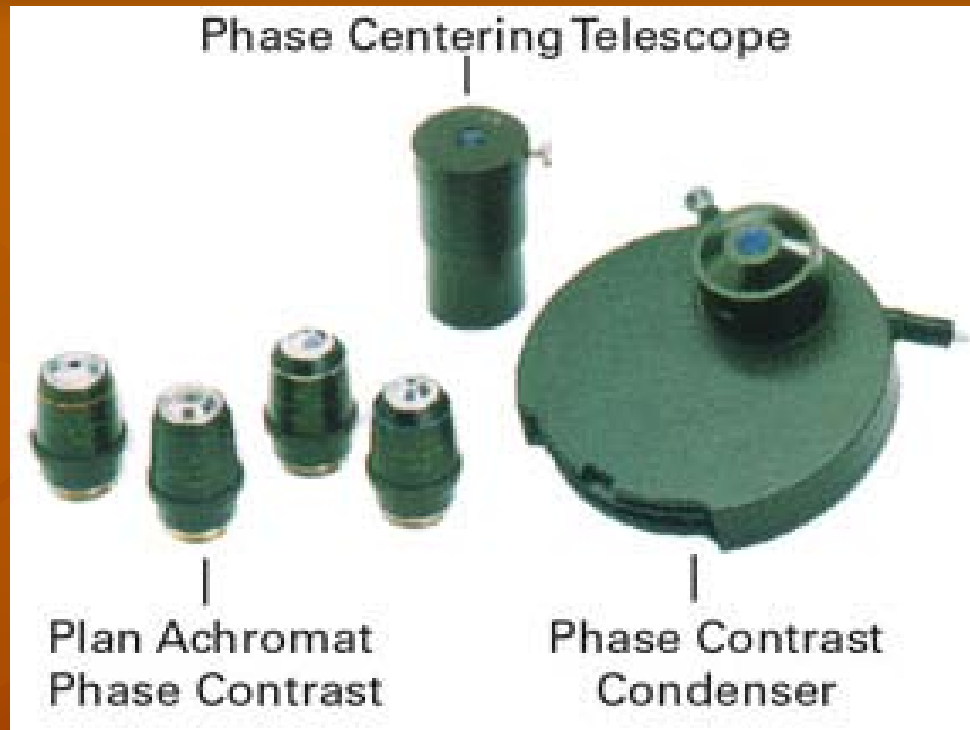
1) Eyepieces (magnifies 10x), one with diopter adjustment, 2) Interpupillary adjustment, 3) Head, 4) Revolving nosepiece, 5) Objectives (magnifies 4, 10, 40x, or 100x), 6) Slide holder, 7) Stage, 8) Iris diaphragm adjustment knob, 9) Light condenser, 10) Blue filter holder, 11) Condenser height adjustment knob, 12) Light source opening, 13) Field diaphragm adjustment, 14) Base, 15) Eyepiece diopter adjustment, 16) Stand, 17) Stage movement knobs, 18) Coarse focus knob, 19) Fine focus knob, 20) Light on/off switch & brightness

Compound microscope (Motic)



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1) Eyepieces (magnifies 10x) diopter adjustment, 2) Interpupillary adjustment, 3) Head, 4) Revolving nosepiece, 5) Objectives (magnify 4x, 10x, 20x, 40x, or 100x), 6) Slide holder, 7) Stage, 8) Iris diaphragm adjustment knob, 9) Light condenser, phase contrast – see below, 10) Condenser height adjustment knob, 11) Field diaphragm adjustment, 12) Stand, 13) Light on/off switch, 14) Light intensity knob, 15) Stage movement knobs, 16) Fine focus knob, 17) Course focus knob, 18) Base



The Motic microscope (room 1660) is very similar to the Hund microscope (room 1325) except that they are equipped with a phase contrast condenser. It is important the condenser turret be set at **BF** for **B**right **F**ield or the number setting corresponding to the objective in use to get phase contrast effects. When done, please remove slide, return the turret to “BF”, and put the 4X objective back in place.

Phase contrast works great for small cells or unstained or very thin sections

- Leave dust cover in cabinet
- Lift microscope with one hand on base, other on stand
- Gently set microscope down on counter
- Plug in, turn on and adjust light intensity about half way
- Open field and iris diaphragm about half way
- Put the red coded 4x objective in place (gives 40x magnification)
- Put slide on stage using clip holder
- Condenser should be just below stage (arrow on knob pointing up for Motics)
- Move stage using knobs so light shines through specimen
- Eyepieces diopter set at 0 for Motic or 65 for Hund (line up number with white line)
- Set eyepiece distance between for your eyes
- Look through eyepiece and focus on specimen using course focus knob
- Turn revolving nose piece to yellow coded 10X objective to give 100x magn.
- Use fine focus, turn to 40X objective (400x magn.) and fine focus as necessary
- Turn off light, unplug cord but please do NOT wrap it around microscope
- Put microscope back in same cabinet with the same dust cover on

Set-up and care

Step 1 (same as when using the dissection microscope): Measure two points on your drawing with the ruler from your student drawer. Make a horizontal line the same length beside the word “Scale:”. **Step 2:** Look at the actual specimen through the microscope and, using the ruler (ocular micrometer) in the right eyepiece, count the number of eyepiece divisions (epd) across same two points (this eyepiece ruler has no units - there are simply 100 eyepiece divisions on it). Multiply the epd by the corresponding number of micrometers given in the table below depending on which objective is in use to determine the width or length of the specimen in micrometers:

Objective	Magnification	1 epd =	Example: view & draw a happy plant cell: ☺ Step 1: Draw a line beside the word “Scale:” the same width as you <u>drew</u> the cell: _____ Scale: _____
4X	x40	25 μm	Step 2: Measure the <u>actual</u> cell width using eyepiece ruler. Multiply the number of eyepiece divisions by the number of micrometers that correspond to the objective in use e.g. using 10X objective: 4 epd x 10 μm = 40 μm Indicate scale beside drawing as: _____ Scale: 40 μm
10X	x100	10 μm	
20X*	x200	5.0 μm	
40X	x400	2.5 μm	
100X	x1000	1.0 μm	

Note: This calibration was accomplished using a stage micrometer ruler 1 mm long divided into 0.01 mm (= 10 μm) markings mounted on a slide. * 20X objectives found on Motic scopes only and not all Hund scopes have x1000

Determination of scale using compound microscope