|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **2** | **What component is highlighted?**   |  | | --- | | Objective | | **Oculars** | | Tube | | Turret | | Condenser |   **Answer required** | | | | [Flip](https://medtraining.org/ltac3/account/adminContentDetail.aspx?oid=97)  https://medtraining.org/ltac3/account/media/Microscopy/2737.jpg  https://medtraining.org/ltac3/account/media/Microscopy/2734.jpg | | | | | | **Explanation**  The oculars, or eye pieces, of the microscope are highlighted. On standard binocular microscopes, there are two oculars, one for each eye. Oculars magnify the primary image formed by the objective lens and project it onto your retina, allowing you to see a greatly enlarged virtual image of the specimen you are studying |
| **3** | **What component is highlighted?**   |  | | --- | | Objective | | Tube | | Turret | | Field aperture | | **Condenser** |   **Answer required** | | | | | [Flip](https://medtraining.org/ltac3/account/adminContentDetail.aspx?oid=97)  https://medtraining.org/ltac3/account/media/Microscopy/2743.jpg  https://medtraining.org/ltac3/account/media/Microscopy/2740.jpg | | | | | **Explanation**  The sub-stage condenser is highlighted here. The condenser is second in importance only to the objective lens, in terms of resolving power of the microscope. Basically, the condenser acts as a “light pump” to focus light onto the specimen. The condenser and objective lens contribute equally to resolution, and ideally the NAs of these two components are matched |
| **7** | | | **Which of the following is the best method for aligning the microscope and illuminating the specimens?**   |  | | --- | | Abbé illumination | | Aperture illumiation | | Aperture matching | | Quartz-halogen illumination | | **Köhler illumination** |   **Answer required** | | | | | | https://medtraining.org/ltac3/account/media/Microscopy/2794.jpg **Illuminating Rays**  https://medtraining.org/ltac3/account/media/Microscopy/2795.jpg **Image- forming rays** | **Explanation**  The most common method of illuminating microscope specimens was introduced by August Köhler in the 1890s, and the technique is named for him. The goal of Köhler illumination is to provide uniform, intense, high angle illumination across the image plane. Learning how to set up Köhler illumination is an important part of learning | |
| **8** | | **Which of the following components is involved in the most steps when aligning Köhler illumination?**   |  | | --- | | **The condenser** | | The stage | | The objective | | The oculars | | The field diaphragm |   **Answer required** | | | | | [Flip](https://medtraining.org/ltac3/account/adminContentDetail.aspx?oid=97)  https://medtraining.org/ltac3/account/media/Microscopy/2803.jpg  https://medtraining.org/ltac3/account/media/Microscopy/2800.jpg | | | | **Explanation**  Most of the steps involved in aligning Köhler illumiation are carried out at or below the microscope stage, and many of them involve the condenser. Illuminating the specimen properly allows the objective lens to be used to full advantage in extracting all the information it is capable of from the specimen. |
| **12** | | | | **What is the first thing you should suspect if you are using a microscope and the image quality suddenly deteriorates from that seen in A to that seen in B?**   |  | | --- | | Dirty oculars | | Inadequate objective NA | | **Dirty objective** | | Condenser diaphragm misadjusted | | Poor specimen |   **Answer required** | | | | [Flip](https://medtraining.org/ltac3/account/adminContentDetail.aspx?oid=97)  https://medtraining.org/ltac3/account/media/Microscopy/2834.jpg  https://medtraining.org/ltac3/account/media/Microscopy/2837.jpg  https://medtraining.org/ltac3/account/media/Microscopy/2826.jpg  https://medtraining.org/ltac3/account/media/Microscopy/2827.jpg | | | **Explanation**  A dirty objective lens is the most common cause of rapid deterioration of image quality. This may be caused by dragging a dry objective through immersion oil, getting a fingerprint on an objective, or an accumulation of dust on the lens surface. Proper cleaning technique can restore image quality, but it is always best to keep objective lenses clean in the first place |