Microscope

1st Practical

1st Term

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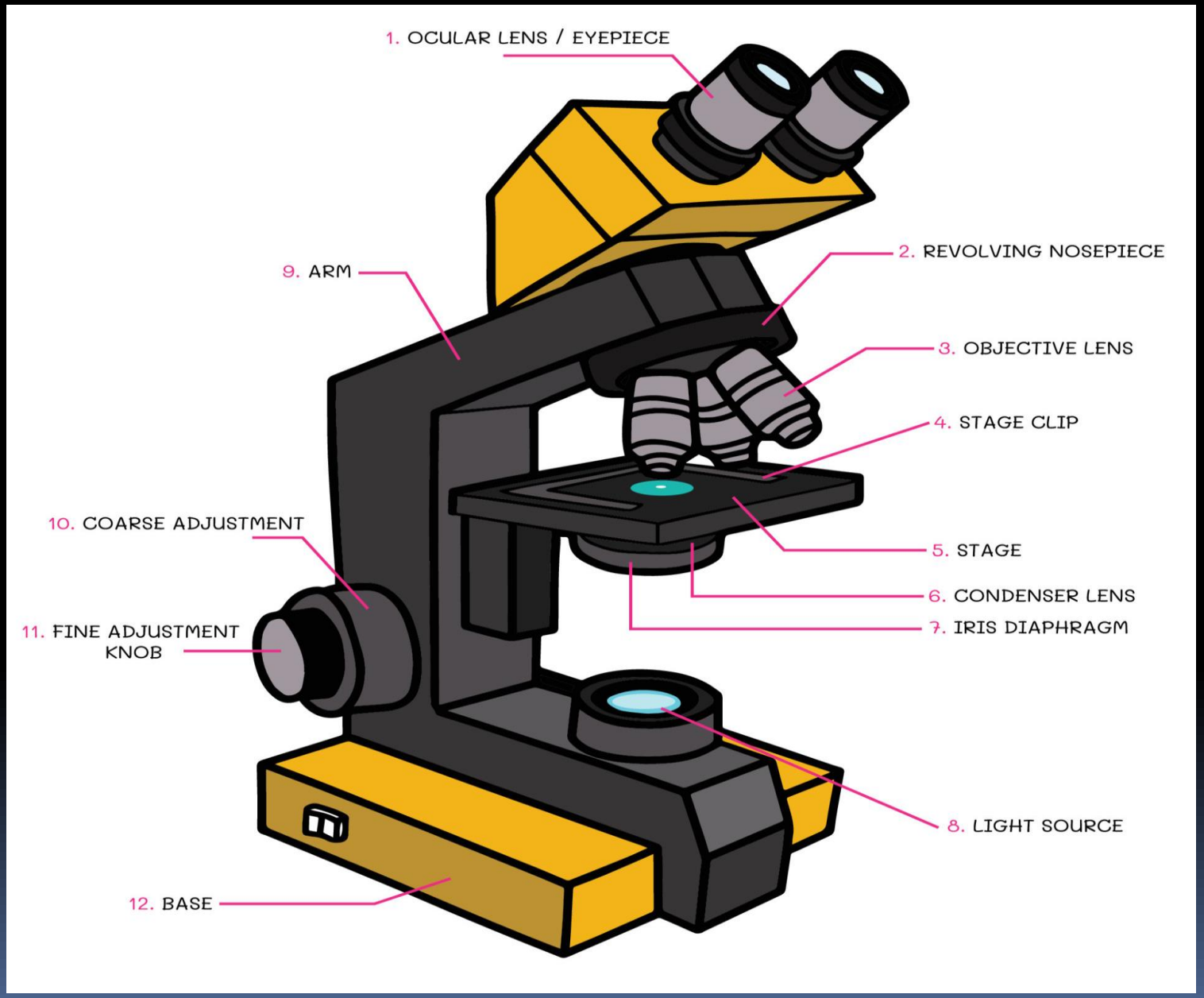

1. OCULAR LENS / EYEPIECE
2. REVOLVING NOSEPIECE
3. OBJECTIVE LENS
4. STAGE CLIP
5. STAGE
6. CONDENSER LENS
7. IRIS DIAPHRAGM
8. LIGHT SOURCE
9. ARM
10. COARSE ADJUSTMENT
11. FINE ADJUSTMENT KNOB
12. BASE

What Are the Different Types of Microscopes?

There are different types of microscopes and each of these has different purposes of use. Some are suitable for biological applications, while others are used in educational institutions. There are also microscope types that find application in metallurgy and studying three-dimensional samples.

In this article, there are 5 such microscope types that are discussed along with their diagram, working principle and applications. These five types of microscopes are:

Simple microscope
Compound microscope
Electron microscope
Stereomicroscope
Scanning probe microscope

Simple Microscope

A simple microscope is defined as the type of microscope that uses a single lens for the magnification of the sample. A simple microscope is a convex lens with a small focal length. The magnifying power of the simple microscope is given as

$$m = 1+d/f$$

Where,

d is the least distinct vision
f is the focal length of the convex lens

Principle of Simple Microscope

The working principle of a simple microscope is that when a sample is placed within the focus of the microscope, a virtual, erect and magnified image is obtained at the least distance of distinct vision from the eye that is held at the lens.

Application of Simple Microscope

It is common among the watchmakers as they can view a magnified image of the smallest parts.
It is also used by the jewellers for obtaining a magnified image of the fine parts of the jewellery.
Most educational institutions such as schools and colleges use a simple microscope in their laboratories.
Dermatologists (skin specialists) use simple microscopes to identify different skin diseases.

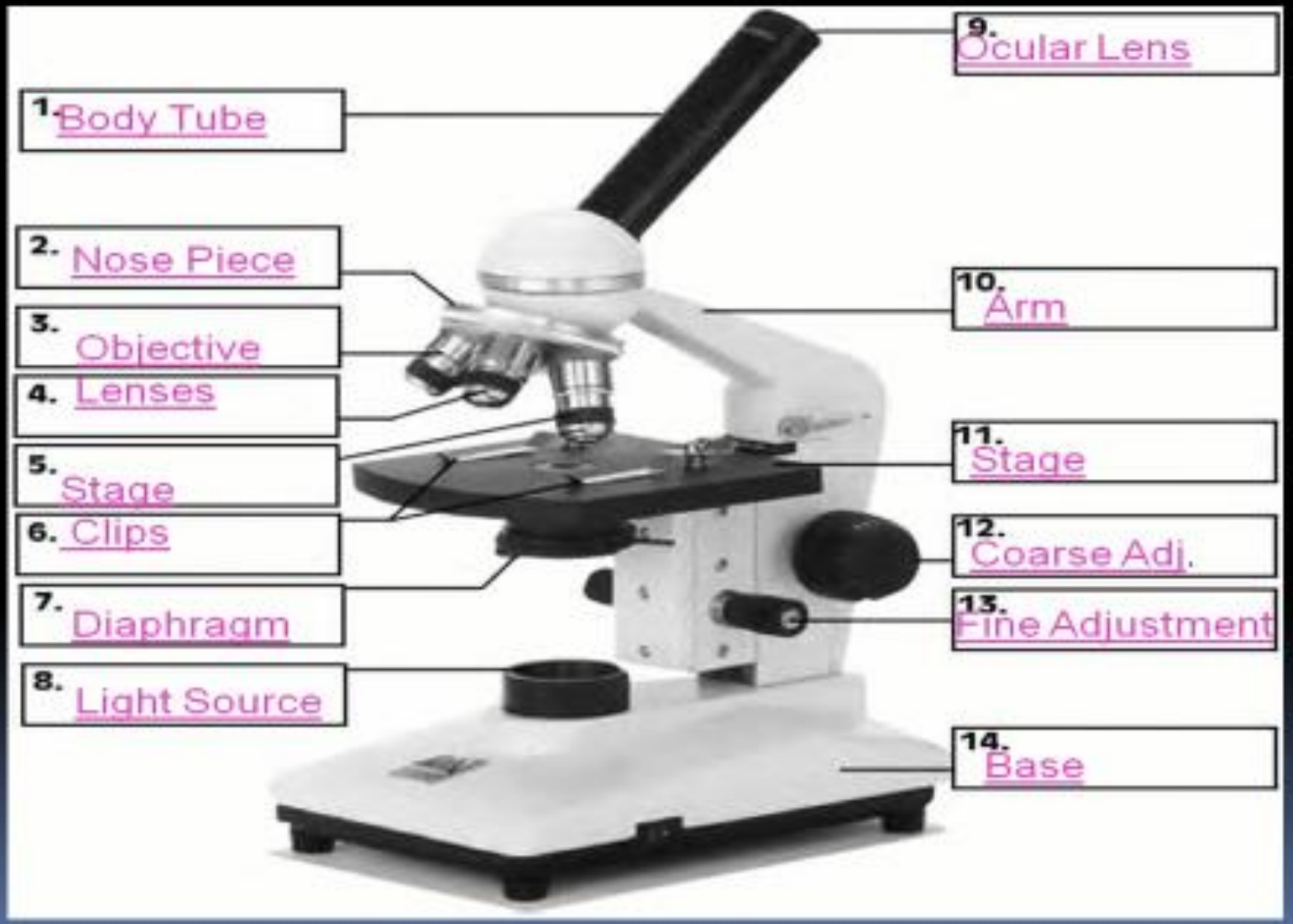
Compound Microscope

A compound microscope is defined as the type of microscope that has more than one lens. It has a combination of lenses and two optical parts known as an objective lens and an eyepiece or ocular lens. The magnifying power of the compound microscope is given as:

$$d = (d/f_0) \times (l/f_e)$$

Where,

d is the least distance of distinct vision
l is the length of the microscope tube
f_o is the focal length of the objective lens
f_e is the focal length of the eyepiece


1. Body Tube
2. Nose Piece
3. Objective
4. Lenses
5. Stage
6. Clips
7. Diaphragm
8. Light Source
9. Ocular Lens
10. Arm
11. Stage
12. Coarse Adj.
13. Fine Adjustment
14. Base