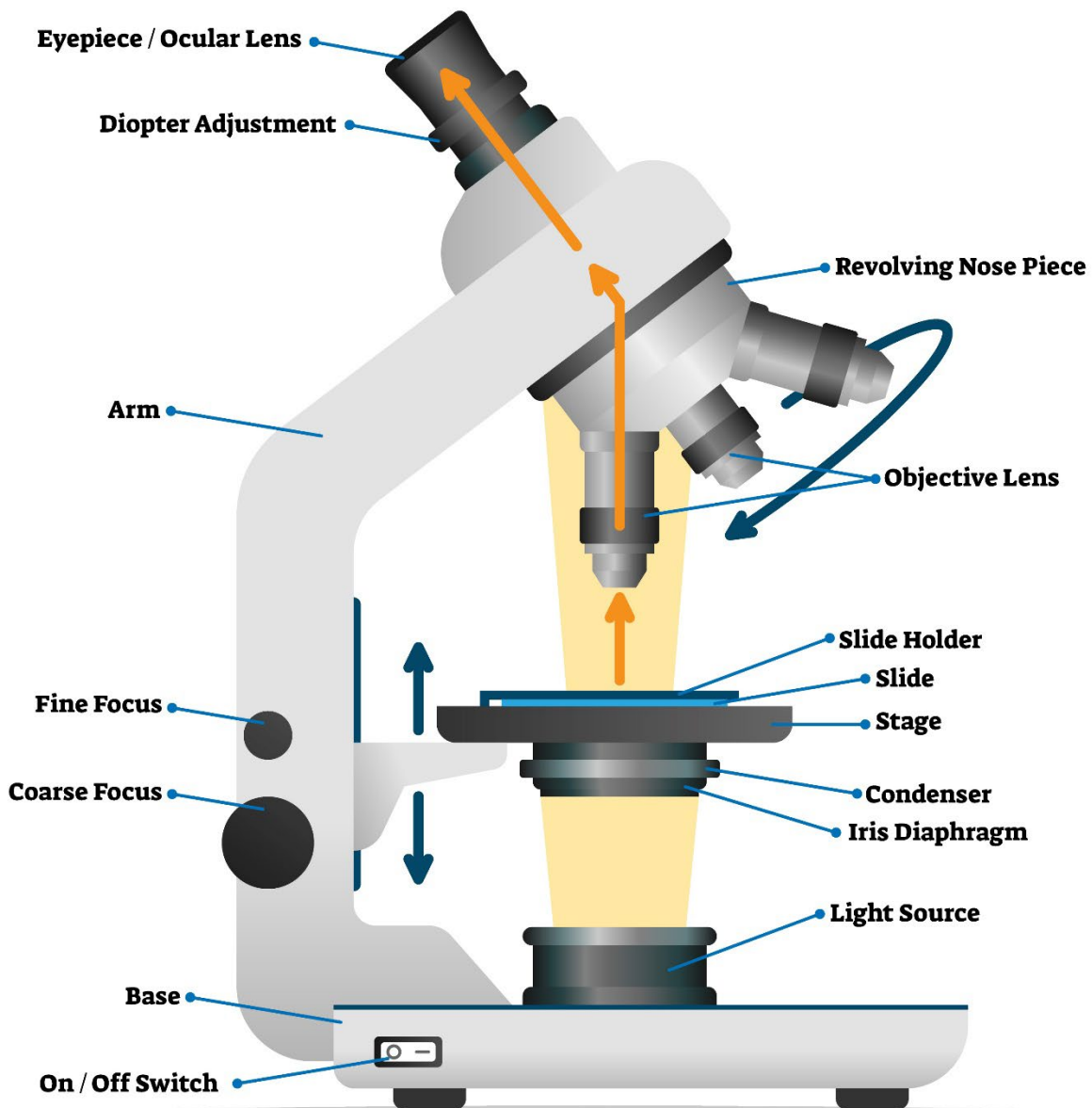


PARTS OF A MICROSCOPE

UNIT STUDY





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ALL ABOUT MICROSCOPES

Microscopes are instruments that are used in science laboratories, to visualize very small objects such as cells, microorganisms, giving a contrasting image, that is magnified.

They are usually used for the study of microscopic algae, fungi, and biological specimens. The eyepiece is the part used to look through the microscope. Its found at the top of the microscope. Its standard magnification is 10x with an optional eyepiece having magnifications from 5X – 30X. Objective Lens are the major lenses used for specimen visualization.

Magnification of a lens is defined as the ratio of the height of an image to the height of an object. Microscope magnification measures the total enlargement of the image of an object. Magnification power is the product of eyepiece lens power and objective lens power.

The coarse adjustment knob moves the stage up and down to bring the specimen into focus. The fine adjustment knob brings the specimen into sharp focus under low power and is used for all focusing when using high-power lenses.

There are 3 structural parts of a microscope:

1. Head
2. Arms
3. Base

There are about 18 other parts to a microscope, but the primary ones are:

Ocular Lens (Eye Piece)
Diopter Adjustment
Head
Nose Piece
Objective Lens
Arm (Carrying Handle)

Stage Clip
Aperture
Illuminator (Light Source)
Base
Brightness Adjustment
Light Switch

Microscope Parts Definitions

head – This is also known as the body, it carries the optical parts in the upper part of the microscope.

base – It acts as microscopes support. It also carries microscopic illuminators.

arms – This is the part connecting the base and to the head and the eyepiece tube to the base of the microscope. It gives support to the head of the microscope and it is also used when carrying the microscope.

eyepiece – also known as the ocular. this is the part used to look through the microscope. Its found at the top of the microscope. Its standard magnification is 10x with an optional eyepiece having magnifications from 5X – 30X.

eyepiece tube – it's the eyepiece holder. It carries the eyepiece just above the objective lens. In some microscopes such as the binoculars, the eyepiece tube is flexible and can be rotated for maximum visualization, for variance in distance. For monocular microscopes, they are none flexible.

objective lenses – These are the major lenses used for specimen visualization. They have a magnification power of 40x-100X. There are about 1- 4 objective lenses placed on one microscope, in that some are rare facing and others face forward. Each lens has its own magnification power.

nose piece – also known as the revolving turret. It holds the objective lenses. It is movable hence it can revolve the objective lenses depending on the magnification power of the lens.

adjustment knobs – These are knobs that are used to focus the microscope. There are two types of adjustment knobs (i.e fine adjustment knobs and coarse adjustment knobs.)

Microscope Parts Definitions

stage – This is the section on which the specimen is placed for viewing. They have stage clips that hold the specimen slides in place.

aperture – This is a hole on the microscope stage, through which the transmitted light from the source reaches the stage.

microscopic illuminator – This is the microscopes light source, located at the base. It is used instead of a mirror. it captures light from an external source of a low voltage of about 100v.

condenser – These are lenses that are used to collect and focus light from the illuminator into the specimen. They are found under the stage next to the diaphragm of the microscope. They play a major role in ensuring clear sharp images are produced with a high magnification of 400X and above.

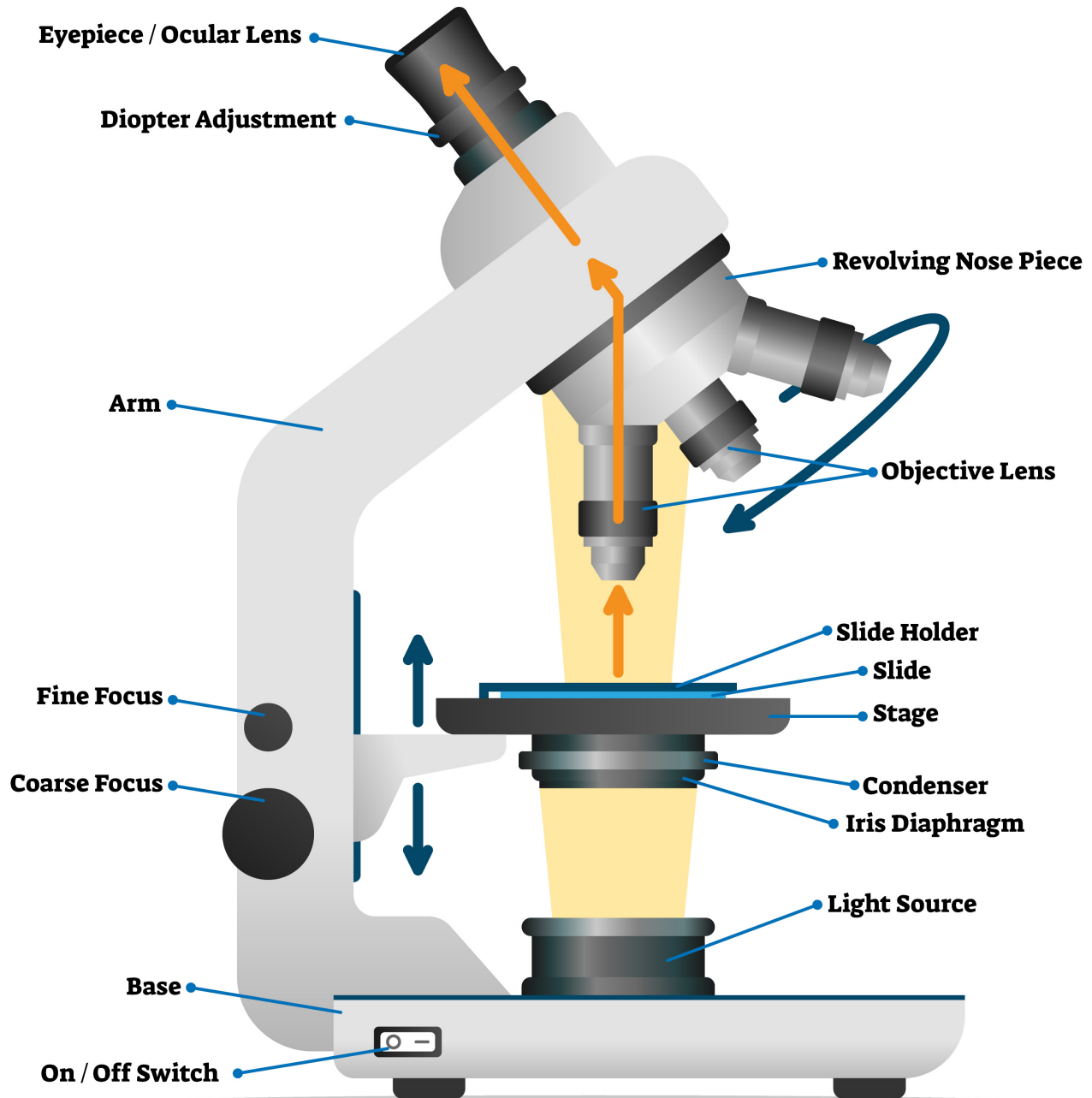
diaphragm – it's also known as the iris. Its found under the stage of the microscope and its primary role is to control the amount of light that reaches the specimen. It's an adjustable apparatus, hence controlling the light intensity and the size of the beam of light that gets to the specimen.

condenser focus knob – this is a knob that moves the condenser up or down thus controlling the focus of light on the specimen.

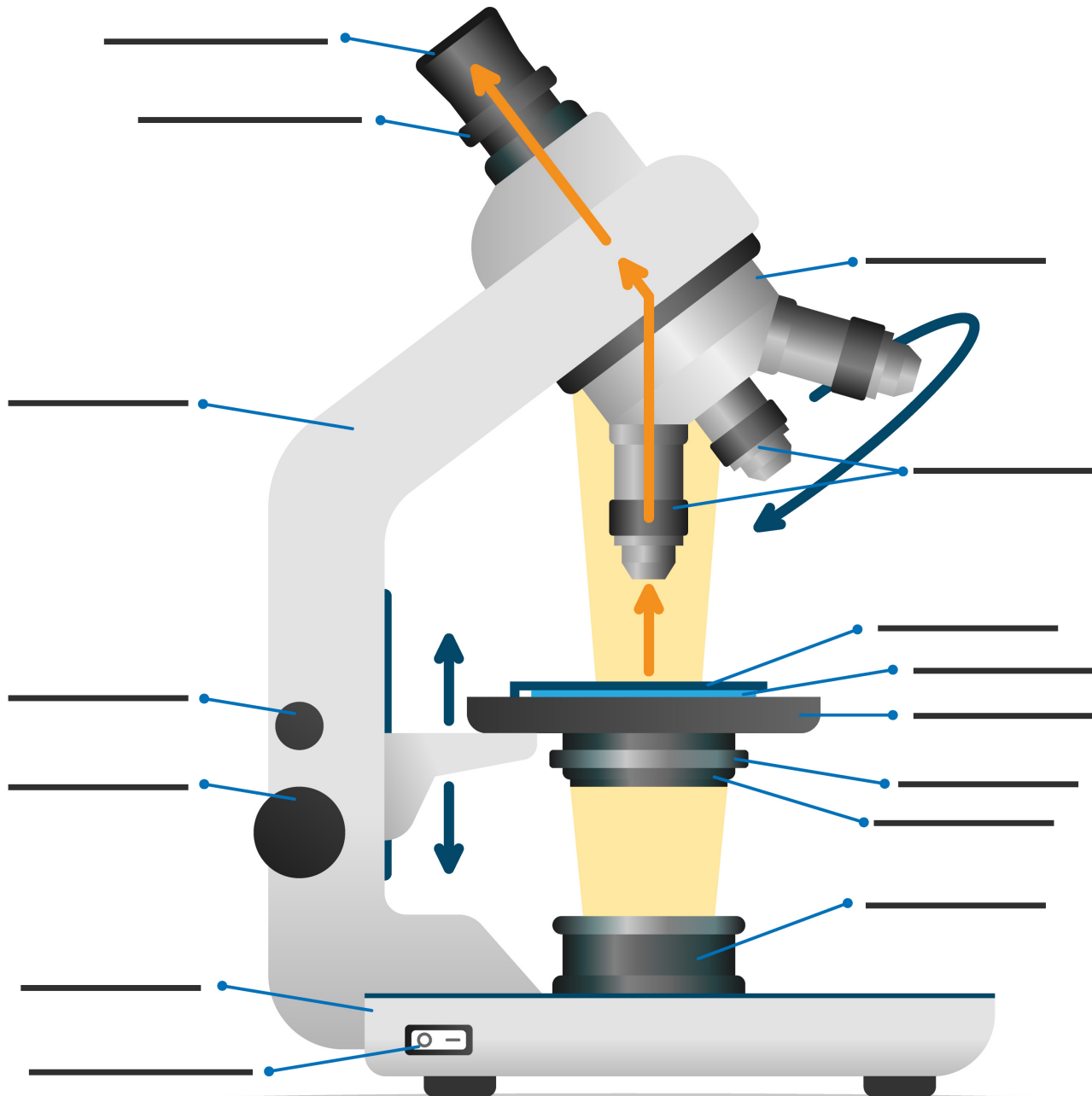
Abbe condenser – this is a condenser specially designed on high-quality microscopes, which makes the condenser to be movable and allows very high magnification of above 400X. High-quality microscopes normally have a high numerical aperture than objective lenses.

the rack stop – It controls how far the stages should go preventing the objective lens from getting too close to the specimen slide which may damage the specimen. It is responsible for preventing the specimen slide from coming too far up and hit the objective lens.

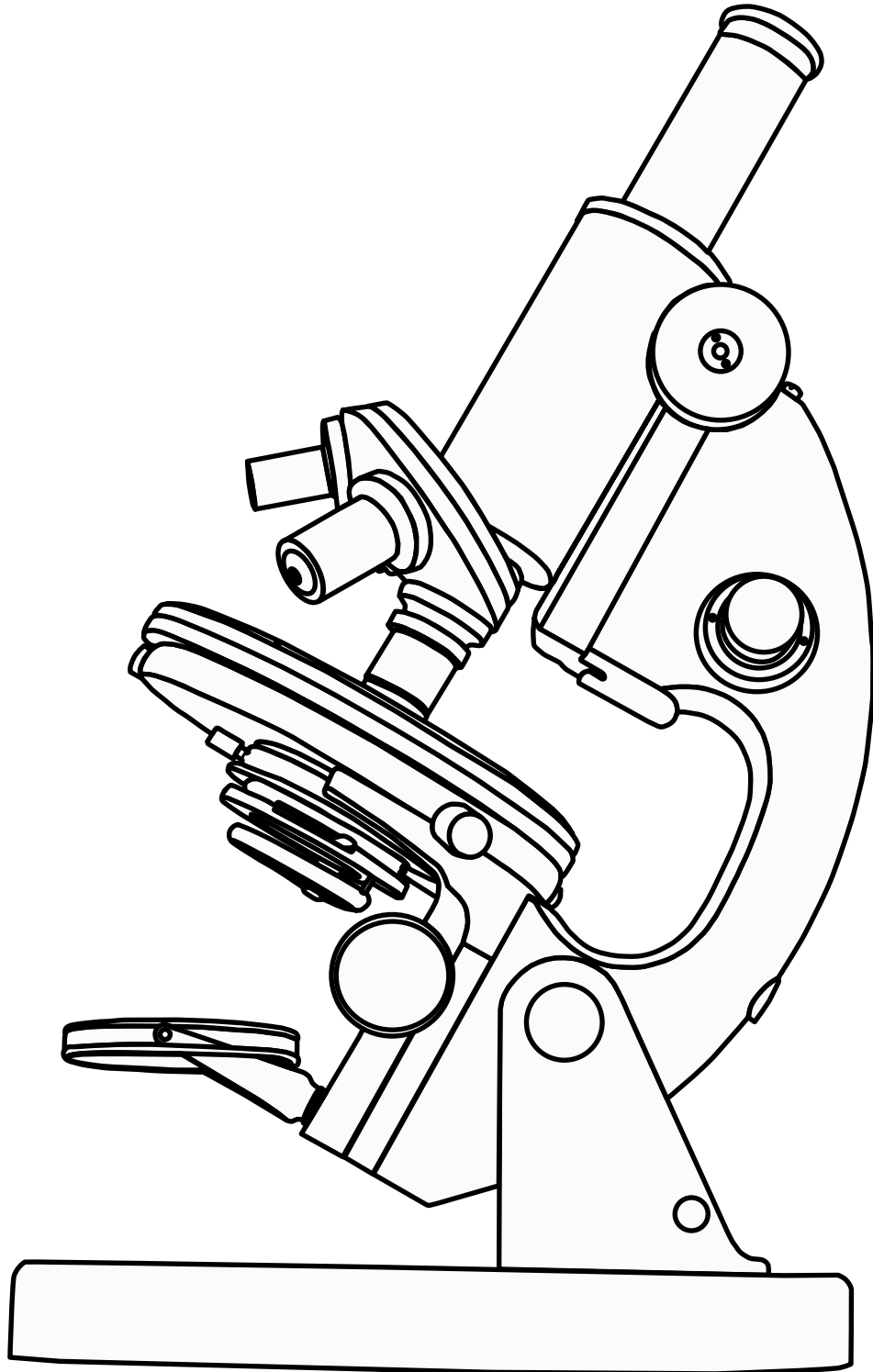
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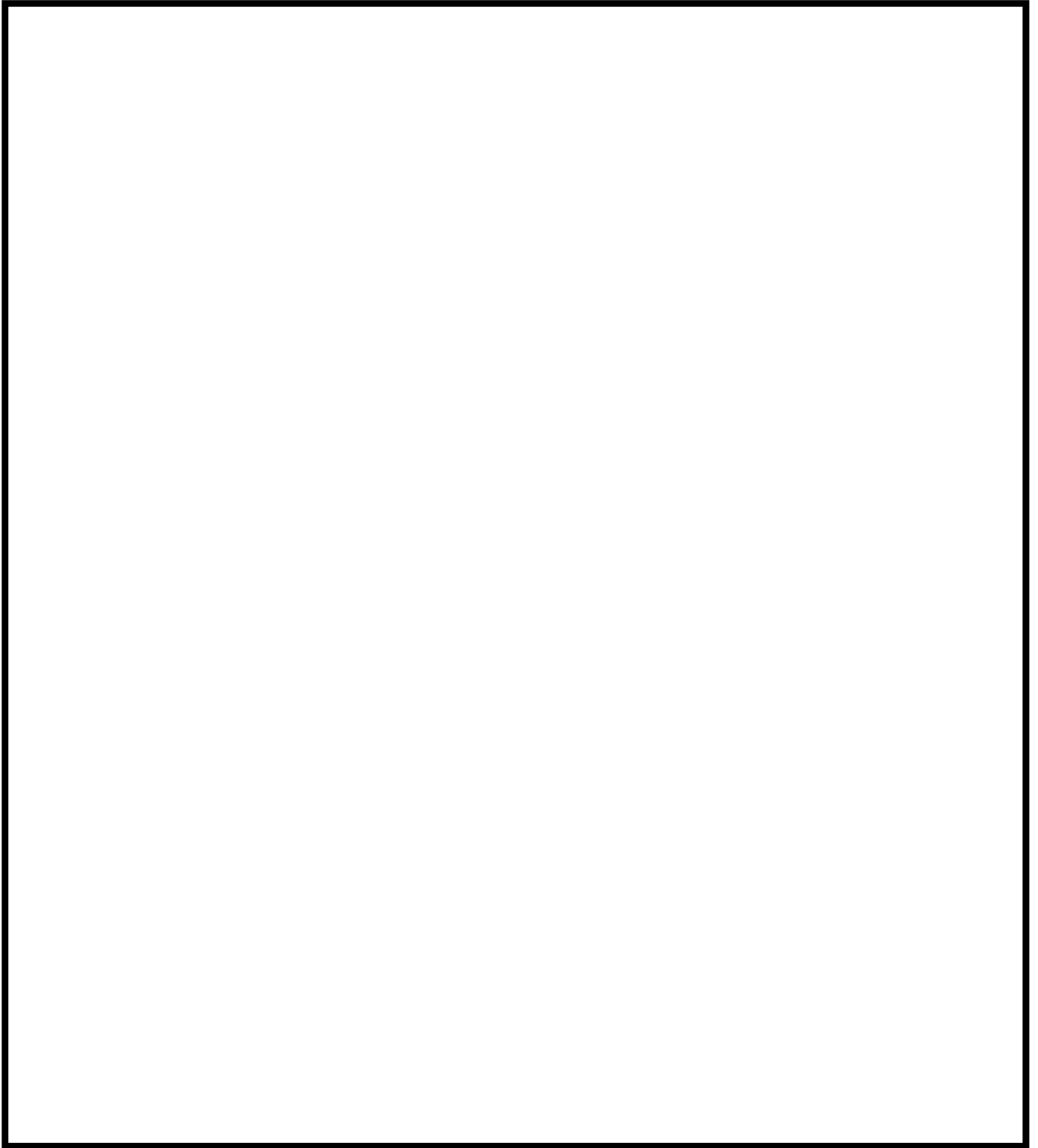
FILL IN THE BLANKS



COLOR THE MICROSCOPE



DRAW A MICROSCOPE



What are some things you'd like to look at with a microscope?

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