

Cell Theory

Station 1: Lab Equipment

Using the provided equipment on the table, match the equipment with the names below:

H 1. Beaker

M 8. Graduated cylinder

C 2. Thermometer

I 9. Eyedropper

B 3. Erlenmeyer flask

A 10. Safety glasses

F 4. Hot Plate

D 11. Bunsen burner

L 5. Test Tube

N 12. Scoopula

S 6. Test tube rack

K 13. Stir rod

G 7. Scale

E 14. Funnel

Name the piece of equipment that is used...

Safety glasses 1. To protect your eyes.

Thermometer 2. To measure the temperature of a liquid.

Beaker 3. For approximate measurement of a liquid.

Graduated
cylinder 4. For more accurate measurement of a liquid.

Scale 5. To measure the mass of a substance.

Test tube rack 6. To hold a test tube.

Eyedropper 7. To transfer small amounts of liquid from one container to another.

Stirrod 8. To stir liquids.

Scoopula 9. To scoop solids.

Funnel 10. To transfer liquids into a container with a small opening.

Station 2: Making Observations

Define and give an example for each of the following:

- Qualitative observation: *Using your senses to make observations*
 - Example: *The apple is red, smooth and round*

- Quantitative observation: *Using instruments to make measurements*
 - Example: *There is 250 mL in the beaker*
 - Instruments we can use: *Rulers, scales, graduated cylinder, beaker, thermometer*

At the table there are three objects. Make 2 qualitative observations and 2 quantitative observations for each of the objects. Complete the chart.

OBJECT	Qualitative observation	Quantitative observation
A <i>Rock</i>	<ol style="list-style-type: none"> 1. <i>Pink + white in colour</i> 2. <i>Feels rough & jaggedy shiny surface</i> 	<ol style="list-style-type: none"> 1. <i>25.83g</i> 2. <i>3.0cm length 2.5cm tall</i>
B <i>Beaker of Water</i>	<ol style="list-style-type: none"> 1. <i>Clear solution</i> 2. <i>Bubbles formed on bottom of beaker</i> 	<ol style="list-style-type: none"> 1. <i>18°C</i> 2. <i>100mL</i>
C <i>Metal strip</i>	<ol style="list-style-type: none"> 1. <i>Silver and shiny surface</i> 2. <i>Feels smooth</i> 	<ol style="list-style-type: none"> 1. <i>14.10g</i> 2. <i>13.2cm in length 1.8 cm in width</i>

Station 3: Characteristics of living things and Biological Drawings

List the seven characteristics of living things:

- Made up of cells
- Respond to the environment / stimuli
- Need energy
- Move
- Grow
- Reproduce
- Get rid of waste

Select **THREE** different living objects in the picture below and choose one (or more) living characteristics that you observe.

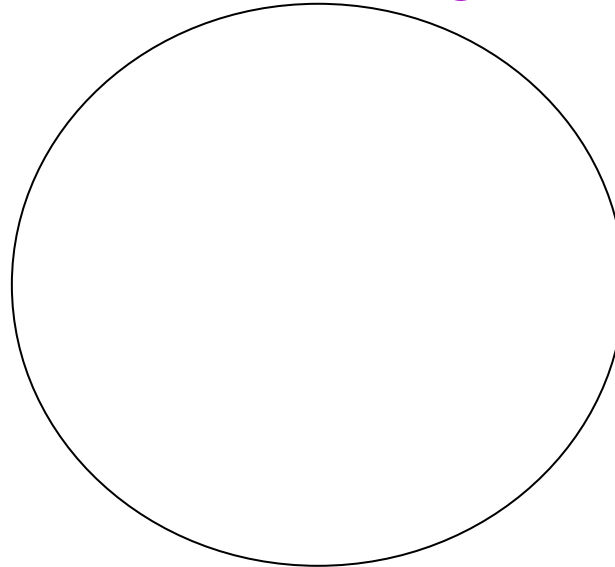


Object:	Exhibited Characteristic(s)
1.	
2.	
3.	

Draw a detailed biological diagram of your sample and include a title, labels and magnification used.

Planaria Specimen
observed at 40x magnification

- Pencil
- Detailed
- labelled w/ ruler
- Shading



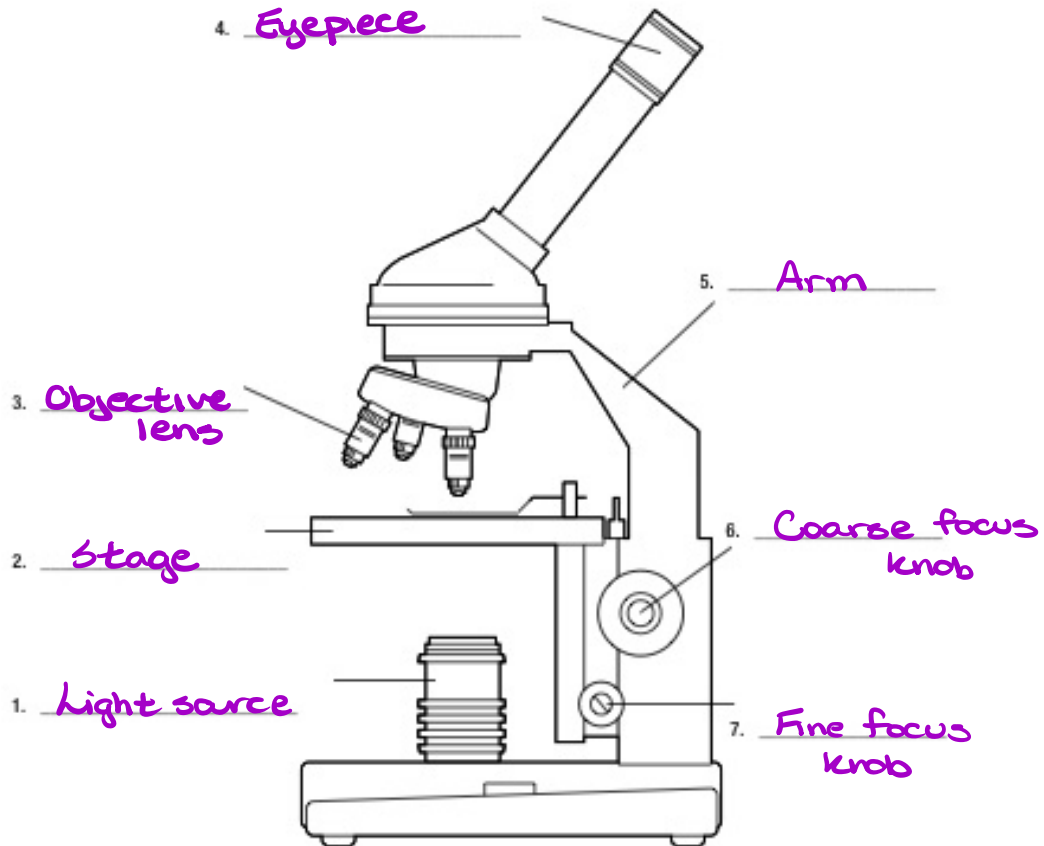
Total magnification: 40x

Match the function with the microscope part.

Function	Microscope part
<u>e</u> 1. holds the slide in place	(a) objective lens
<u>b</u> 2. lens closest to the eye	(b) eyepiece
<u>g</u> 3. supplies the light needed to view the object	(c) revolving nosepiece
<u>c</u> 4. allows you to switch magnifications	(d) coarse focus knob
<u>a</u> 5. magnifies the object	(e) stage clips
<u>h</u> 6. supports the microscope slides	(f) fine focus knob
<u>d</u> 7. used for focussing at low power	(g) light source
<u>f</u> 8. used for focussing at high power	(h) stage

Station 4: Summary Questions

Label the following diagram:



1. If you are using a **medium** power objective lens, what is the total magnification of the specimen?

$$\begin{aligned}\text{Magnification} &= \text{Eyepiece} \times \text{Objective lens} \\ &= 10 \times 10 \\ &= 100\times\end{aligned}$$

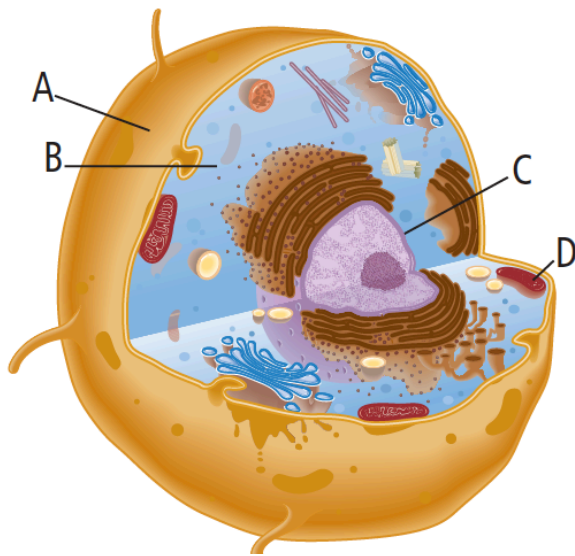
2. For a correct microscope diagram, identify whether the following statements are **true** or **false**:

- F The diagram can be drawn in pen
- T The diagram must include detail
- F Lines do not have to be drawn with a ruler
- T The labeling lines must be horizontal
- F Writing can be in the diagram circle
- T A title must be included
- F The magnification is irrelevant to the diagram

3. Complete the table with the function of the organelle:

Organelle	Function
Cell membrane	Boundary of the cell Controls movements in and out of cell
Lysosome	Garbage disposal of the cell Contains digestive enzymes that break down waste
Nucleus	Control center of cell Contains DNA
Mitochondria	Powerhouse of the cell Cellular respiration occurs here
Cytoplasm	Jelly-like substance Maintains structure of the cell Contains organelles & other life supporting materials
Golgi body	Stores, modifies, packages proteins

4. Label the following animal cell diagram:



A: Cell membrane

B: Cytoplasm

C: Nucleus

D: Mitochondria