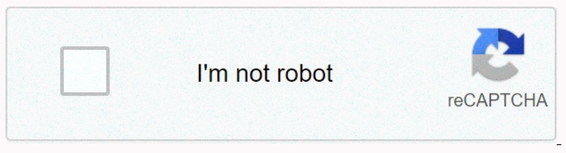
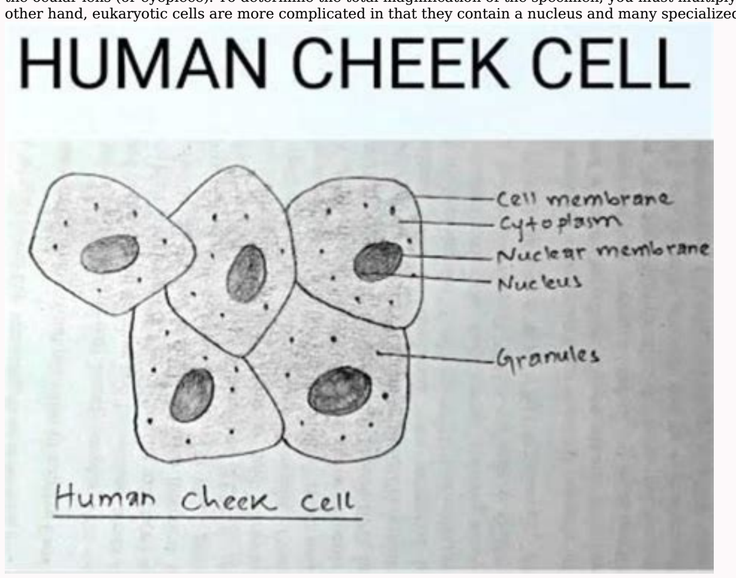



I'm not robot!

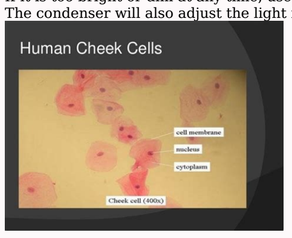
# Human cheek cell diagram labeled

**Human cheek cell description.  Human cheek cell size.  What is the shape of the human cheek cell.  Human cheek cell dna description.**

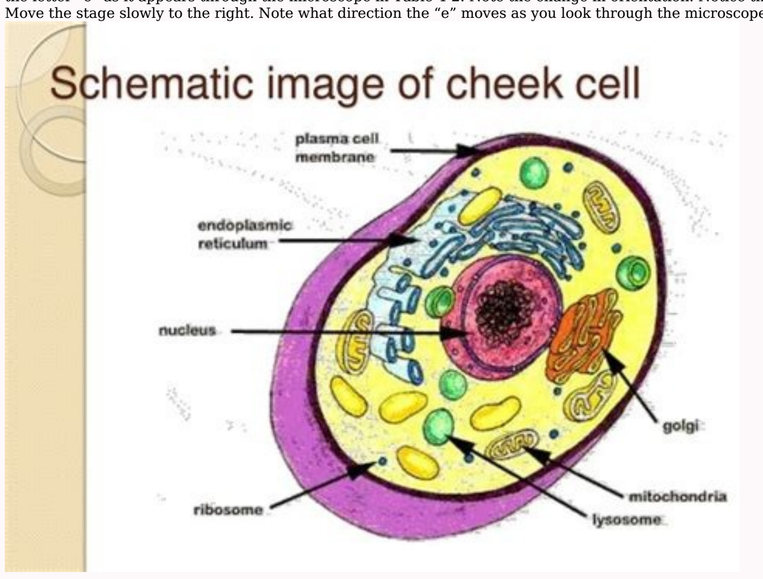
The tissue that lines the inside of the mouth is known as the basal mucosa and is composed of squamous epithelial cells. These structures, commonly thought of as cheek cells, divide approximately every 24 hours and are constantly shed from the body. Not Available in Your Country Sorry, this page is not available in your country. Goals: Properly use and care for a sensitive scientific instrument. Learn the techniques required to prepare cells for viewing with a microscope. Gain a sense of the size of cells.
Student Learning Outcomes: Upon completion of this lab, students will be able to: Identify the parts of a microscope and their functions. Properly carry, use, and store a microscope. Prepare a wet mount slide. View and focus specimens under a microscope. Determine total magnification of a specimen. Locate a specimen if given a slide. In Biology, the compound light microscope is a useful tool for studying small specimens that are not visible to the naked eye. The microscope uses bright light to illuminate through the specimen and provides an inverted image at high magnification and resolution. There are two lenses that magnify the image of the specimen – the objective lens on the nosepiece and the ocular lens (or eyepiece). To determine the total magnification of the specimen, you must multiply the objective lens magnification with the ocular lens magnification. Scientists and technicians often use light microscopes to study cells. Prokaryotic cells are very simple and lack a nucleus or membrane bound organelles and are small in size. On the other hand, eukaryotic cells are more complicated in that they contain a nucleus and many specialized organelles. A cell's structure dictates its function; thus, each eukaryotic cell looks very different from the next. This is why a cardiac cell looks completely different from a neuron (brain cell).



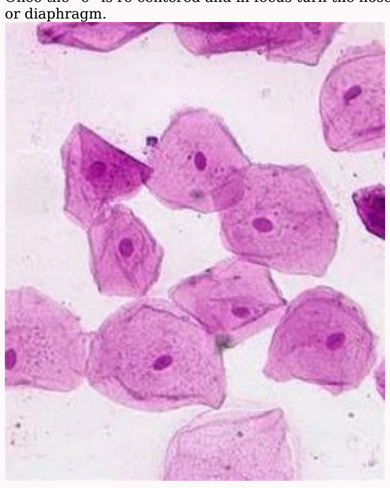

It is very important to learn how to handle and use a microscope properly. Review the following rules and tips for using and handling your microscope. Figure 1. Labeled parts of a microscope. Always START and END with the low power lens when putting on OR taking away a slide. Never turn the nose piece by the objective lens. Do not get any portion of the microscope wet - especially the stage and objective lenses.
Use only lens paper to clean microscope lenses. If needed, obtain a small square of lens paper (and ONLY lens paper) and gently wipe the microscope lenses directly across, in this order: the lower surface of all the objective lenses the ocular lens the condenser lens and the light housing Microscope Lens paper Letter "E" slide Stage Micrometer Slide Always use one hand around the microscope arm and one hand under the microscope base. Carry it in a vertical position without swinging, tipping, dropping or bumping the microscope. Place the microscope gently on the lab bench with the arm toward you. Never place the microscope near the edge, and never slide it across the table. Identify the following microscope parts with a partner. Check off each part as you go. If you are unsure about a component, consult your instructor. Eyepiece (ocular lens) Nosepiece Ring (turret) Objective Lenses (low, medium, high power) Stage Stage Controls Iris Diaphragm Condenser Lens Light Source Light intensity knob (rheostat) Coarse Focus Adjustment Knob Fine Focus Adjustment Knob Carefully plug in and position electric cord to avoid tripping or having the microscope pulled off the table. Turn on the microscope and rotate the nosepiece ring (turret) to snap the 10x objective lens in place. Do not use the objective lens to rotate! Turn the light control (rheostat) halfway to adjust the amount of light. The total magnification you observe when looking through a microscope is the magnification of the ocular lens multiplied by the magnification of the objective lens. Fill out Table 5.1 to indicate the total magnification achieved by each lens. Table 1. Total Magnification Achieved Using Various Objectives Lenses of a Compound Light Microscope Lens Name Objective Lens Ocular Lens Total Magnification On the side of the microscope are two knobs, one on top of the other. The larger of the two knobs is the coarse focus adjustment knob. Turn the knob so that the stage goes down as far as it can. Clean all lenses with lens paper. Never use paper towels or kimwipes or shirt! Obtain a letter "e" slide from your instructor. Draw the "e" in Table 5.2 as you view it with your eyes (not through the microscope). Table 2. The letter "e" viewed at different magnifications using a light microscope Letter "e" as seen… Drawing with the naked eye 100X total magnification 400X total magnification 1000X total magnification 1000X total magnification In what direction does the "e" move (as you look into the microscope), when you move the stage to the right? Place the slide on the stage and secure it with the stage clip. Use the coarse focus knob to move the stage as high as it can go. Use stage adjustment knobs to center the "e" so that the light from the light source can pass through it. Looking through the ocular lenses, lower the stage with the coarse focus adjustment knob until the "e" comes into view. Use the fine focus adjustment knob to make the image as clear as you can. At this point there are different adjustments you can make to improve the quality of the image: The rheostat on the side of the microscope controls the intensity of the light.
If it is too bright or dim at any time, use this knob to adjust the light.
The condenser will also adjust the light intensity. The condenser gathers and focuses the light to illuminate the specimen.



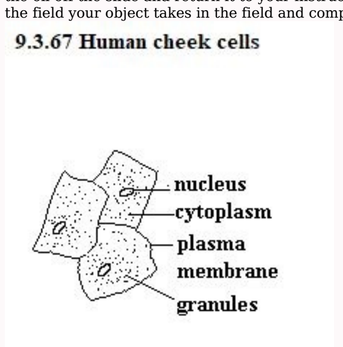

Only use this if the rheostat failed to improve your image. Move the condenser with the condenser adjustment knob so that it touches the stage. Slowly lower it to improve lighting on your sample.
Usually it should be about ½ inch below the stage. The iris diaphragm adjusts the aperture of the opening and controls the amount of light that exits the condenser (or illuminates the specimen). You can open and close this aperture, for most purposes it should be fully open, but sometimes partially closing it will increase contrast in the image. Draw the letter "e" as it appears through the microscope in Table 4-2. Note the change in orientation. Notice that the LEFT eyepiece can be rotated, but the ocular scale (known as a reticle) stays in the middle of the ocular lens. Note that the RIGHT eyepiece can be rotated, to move the position of the pointer.
Move the stage slowly to the right. Note what direction the "e" moves as you look through the microscope and record in Table 4-2.




Move the slide back to the left to re-center the "e". Once the "e" is re-centered and in focus, turn the nosepiece to the 40x objective lens and snap it into place. Use the fine focus to make the image clear. Only if needed, make light adjustments with the rheostat, condenser, or diaphragm. Draw everything you see through the microscope in Table 4-2. Once the "e" is re-centered and in focus turn the nosepiece to the 40x objective lens and snap it into place. Use the fine focus to make the image clear (NEVER use the coarse focus at this or any higher magnification or you risk snapping the slide or worse, snapping the lens!!!) Only if needed, make any light adjustments with the rheostat, condenser, or diaphragm.



Draw everything you see in the microscope in Table 4-2. Answer the questions below. To use the oil immersion lens, rotate the nosepiece BETWEEN the 40x and the 100x lenses so that the wand containing the oil can reach the slide. Place a generous drop of oil on the slide and snap the 100x objective lens into place. The lens will slide into the drop of oil. Use the fine focus to make the image clear. Only if needed, make light adjustments with the rheostat, condenser, or diaphragm. Draw what you see in Table 4-2. NEVER return to the 40X objective lens after there is oil on the slide. If you are having trouble focusing using the oil immersion lens, you must go back and use the 10x lens to re-center (turn the nosepiece so that the 40x objective lens is NOT dragged through the oil on the slide). Then go directly back to the 100x lens. If this doesn't work, the slide must be wiped clean and you should start over. When finished with the slide, lower the stage and remove the slide. (Do not lower the stage if you are going to view a different slide). Clean the oil off the slide and return it to your instructor. Microscopes are for magnification of images too small to be seen with the naked eye. However, they can be used as a tool to estimate the size of the object being viewed. In order to do this, you must know the diameter of each viewing field with each objective lens. You can then estimate how much of the field your object takes in the field and compare this to the measured diameter. For example, let's say the diameter of field using the 40x objective lens is 0.10 mm. You then view an object using that lens that takes up ¼ of the field of view.




You can then estimate that object is ¼ (0.10mm) long or 0.025mm. To determine the field diameter, you will use a stage micrometer slide, which is basically a very fine ruler (usually 2 mm) that is etched onto a microscope slide. Figure 2. Stage micrometer Obtain a stage micrometer slide. BE VERY CAREFUL. A stage micrometer slide is costly, so please treat it with respect! Place the stage micrometer slide on the stage and focus on the millimeter markings using the 10x objective lens.
Record the field diameter in mm when you use this lens in Table 3. Switch to the 40x objective lens and focus. Determine the field diameter in mm with the micrometer and record in table 3.
Repeat the same steps for the other objective lenses. Convert the diameters to micrometers (µM). All cell and organelle measurements will be done in µM. Clean the slide carefully and place it back in its tray on the demo table. Table 3. Determining the Field of View Using a Stage Micrometer Lens Used Total Magnification Diameter of Field (mm) Diameter of Field in (µm) Slides (in alcohol jar) Cover slip (in alcohol jar) Paper towels Tray or Beaker to wash slides Forceps Transfer pipets Knife and cutting boardToothpicks Onion Iodine (dropper bottle) Methylene blue (dropper bottle) Elodea Leaf (in beaker of water) Pond water (in beaker) 20% salt water (dropper bottle) Deionized water (dropper bottle) Figure 3. Human cheek cell at 400x zoom. The human cheek is lined with epithelial cells. They will be used today for you to observe a eukaryotic animal cells and its nucleus. You will scrape and stain a sample of your cheek cells with the dye methylene blue. The dye will allow you to clearly stain the nuclei of the cells. Be careful with the dyes used for the wet mounts as they will stain your skin and clothes. Also, the slides and coverslips you will use are stored in alcohol. Make sure to dry off the slides and coverslips with paper towels (not the expensive lens paper) before preparing your wet mount slides. Get a dry microscope slide and cover slip. Put a drop of methylene blue on the slide. Gently scrape the inside of your cheek with a toothpick and swirl it in the dye on the slide. Place a cover slip on the suspension and view at 1000X total magnification Draw 1-3 cells large enough to show the detail that you see in your lab manual.
Label its cell membrane, cytoplasm and nucleus. Be sure to indicate the magnification used and specimen name. Also indicate the estimated cell size in micrometers under your drawing. See the example (which is missing the labels).
The cell membrane is not visible on the Elodea leaf because of its proximity to the much thicker cell wall. In order to view the membrane, you will add salt to the Elodea. Water will flow out of the Elodea cells by osmosis, shrinking the cell membrane away from the stiff cell wall (plasmolysis). Get a microscope slide. Place 2 drops of dI water on the left and 2 drops 20% salt on the right. Obtain a leaf from a stalk of Elodea and cut the leaf in half. Place a half leaf in each solution. Wait 3-5 minutes and then place a cover slip over each leaf (dab off excess water).
View at between 400X total magnification. Look for cells that have undergone plasmolysis.
If none are found, prepare the slide again.
Draw 2-3 connected cells large enough to show the detail that you see. Label the cell wall, cell membrane, cytoplasm, and chloroplasts in your lab manual. Be sure to indicate the magnification used and specimen name.

Also indicate the estimated cell size in micrometers under your drawing. Figure 4. Elodea cells at 400x Figure 5. Elodea cells undergoing plasmolysis at 400x Onion bulbs are actually swollen leaves that form an underground structure.
Although not a good source for viewing chloroplasts, they are an excellent source for viewing eukaryotic plant nuclei. Figure 6. Onion cells at 400x Get a dry microscope slide and cover slip. Cut a tiny square of one layer of the onion.
Use forceps to peel the thin, white, transparent membrane from the inner concave side of an onion section (you only need a small piece, about the size of a pencil eraser) and place on slide. Try to smooth out the transparent onion membrane as flat as possible. Add a drop of iodine to the membrane and wait 30 seconds. Cover the membrane with a coverslip. Place the slide inside folded paper towel and pat gently for 1 second to remove excess dye.
View at either 100X or 400X total magnification, so that you can see 2-3 cells. Draw 2-3 connected cells large enough to show the detail you see. Label the cell wall, nucleus, and cytoplasm. Be sure to indicate the magnification used and specimen name. Also indicate the estimated cell size in micrometers under your drawing.
You will prepare a wet mount of one of the following protists that can be found in pond water: Euglena, Spirogyra, Paramecium, and/or Amoeba. Get a depression slide and dry it off. The depression slide has a curved indent in the middle of the slide, which allows the living creatures to move around and not get squished. Put a drop of methyl cellulose and a drop from the pond water or cultures. Carefully put on a coverslip. If you have too much liquid on the slide, then gently use a corner of a paper towel to absorb the excess liquid. View at 100X or 400X total magnification. Draw the organisms that you see. Be sure to indicate the magnification used and specimen name. Also indicate the estimated cell size in micrometers under your drawing. You will look at various prepared slides including Paramecium, Spirogyra, Human Blood Smears, Human Sickle Cell Red Blood Smears, Frog Blood Smears, and possibly others.
View under the microscope using the highest magnification for the best cellular details and draw what you see. Be sure to indicate the magnification used and specimen name. Also, indicate the estimated cell size in micrometers under your drawing. Figure 7. Specimens at 400x Magnification.From left to right: Spirogyra, Paramecium, Human Blood Smear, Human Sickle Cell. Check off each task when complete.
The instructor must sign before storing your microscope. Rotate low power objective lens in position Use coarse focus to raise nosepiece to the top Remove slide from stage Be sure that the bar from stage clips does not stick out Turn rheostat to lowest before turning off the light Unplug and wrap power cord according to instructor’s instructions Carry microscope properly to cabinet and return to the correct shelf On the next page, label the parts of the microscope and list their function. How is a microscope properly carried? How is the microscope properly put away? What is the magnification power of: High-power objective lens? Medium-power objective lens? Low-power objective lens? Ocular lens?
How is the total magnification of a specimen determined? When the magnification increases, how does the size of the field of view change? Why is it important to place the medium on a slide before selecting the specimen to be mounted? Name one way to be sure the specimen will be found in the field of view when you change magnification. What are the distinguishing characteristics of a plant cell versus an animal cell? Knowing the size of the field of view using one of the three magnification lenses, be able to determine the size of a specimen being observed. Figure 8. Blank microscope to label parts. Cheek cells are eukaryotic cells (cells that contain a nucleus and other organelles within enclosed in a membrane) that are easily shed from the mouth lining. It's therefore easy to obtain them for observation.Some of the main parts of a cell include:1.  Cell membrane (outer boundary of the cell)2.  Cytoplasm (the fluid within the cell)3.  Nucleus (at the center of the cell and controls cell functions)4.  Organelles (e.g. mitochondria-Organelles are cell structures with specific functions)Using biological stains such as methylene blue, it's possible to clearly observe and differentiate the different parts of a cell. This is because the stain will color some parts of the cell and not others, allowing them to be clearly observed.RequirementsHow to Prepare a Wet Mount of Cheek CellsBefore starting, it's always important to ensure that the working surface is clean and that you are wearing a pair of clean gloves to avoid contamination.Cheek cells can be easily obtained by gently scraping the inside of the mouth using a clean, sterile cotton swab.Once the cells have been obtained, the following procedure is used for cheek cell wet mount preparation:place a drop of physiological saline on a clean microscopic slide (central part of the slide)smear the cotton swab on to the center (part containing the saline drop) of the clean slide for about 4 seconds to get the cells on to the center of the slideadd a drop of methylene blue solution on to the smear and gently place a cover slip on top (to cover the stain and the cells)any excess solution can be removed by touching one side of the slide with a paper towel or blotting paper.place the slide on the microscope for observation using 4 x or 10 x objective to find the cellsonce the cells have been found, they can then be viewed at higher magnificatio* Note - Used cotton swabs and cotton towel should be safely discarded in the trash and not left lying on the working table.Why do we have to Stain the Cells?The cell has different parts, and those that can absorb stains or dyes are referred to as chromatic. Having absorbed the stain, these parts of the cell become more visible under the microscope and can therefore be easily distinguished from other parts of the same cell.Without stains, cells would appear to be almost transparent, making it difficult to differentiate its parts.Methylene blue has a string affinity for both DNA and RNA. When it comes in contact with the two, a darker stain is produced and can be viewed under the microscope.The nucleus at the central part of the cheek cell contains DNA. When a drop of methylene blue is introduced, the nucleus is stained, which makes it stand out and be clearly seen under the microscope.Although the entire cell appears light blue in color, the nucleus at the central part of the cell is much darker, which allows it to be identified.  ObservationOn mounting the wet slide, the following will be observed:Large irregularly shaped cells with distinct cell membranes.A distinct nucleus at the central part of each individual cell (dark blue in color).A lightly stained cytoplasm in each cell.ConclusionThis is an easy and fun experiment that will show kids the basic structure of a cell and its major parts. For easy identification of the parts, the parent or teacher can first show the kids some samples of the cells in advance.This will help them identify different parts with ease.Once this has been achieved, kids can move on to the next stage of learning the functions of these different parts.** Find prepared microscope slides and equipment to correctly perform microscope experiments.See also:  Epithelial CellsSee differences between cytosol and cytoplasm here.Other similar fun experiments - Onion Cells , Sugar Crystals, Cork Cells, Taking a look at leaves and Hair Under the MicroscopeSee Cell OrganellesReturn to Beginner Microscope ExperimentsReturn from Cheek Cells to MicroscopeMaster Homereport this adFind out how to advertise on MicroscopeMaster!