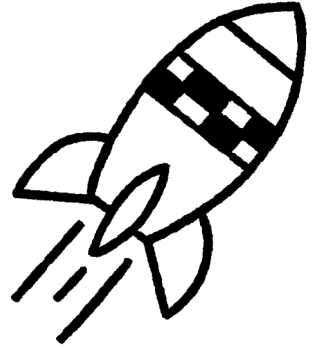


Ku fiirinta unugyada (cells) mikroskoob iftiin (light microscope)



Sayniska

Cutub: Unugyo (Cells)

Natiijo

Waxaan isticmaali karaa mikroskoob iftiin (light microscope) si aan u fiiriyo unugyada (cells).

unug (cell)

muraayad (lens)

mikroskoob iftiin (light microscope)

fiiro (focus)

weyneynta (magnification)

Erayada muhiimka ah

Unuggu (cell) waa qaybta ugu yar ee nool ee ka dhisan noole (organism).

Muraayaddu (lens) waa qayb muraayad qaloocan oo fiira iftiinka si ay u beddesho cabbirka sawirka.

Mikroskoob iftiin (light microscope) waa qalab isticmaala muraayado (lenses) si uu u fiiro iftiinka oo u weyneeyo sawirka shayga.

Hagaajinta fiirada (focus) muraayadda (lens) waxay ka dhigaysaa sawirka mid cad.

Kordhinta weyneeynta (magnification) shay waxay ka dhigaysaa mid ka weyn.

Qaabka casharka

Ku fiirinta unugyada (cells) mikroskoob iftiin (light microscope)



Noolayaasha (organisms) waxay ka kooban yihiin unugyo (cells)



Mikroskoobyada waxaa loo isticmaalaa in lagu fiiriyo unugyada (cells)



Isticmaalka mikroskoobka

Dhammaan noolayaasha (organisms) waxay ka kooban yihiin qaybo nool oo dhisme ah.

Dhismayaasha nool ee dhismaha ayaa loo yaqaan unugyo (cells).

Unugyadu (cells) inta badan aad bay u yar yihiin inaan indhaha ku arki karno. Waa inaan weyneyno (magnify) si aan u aragno.

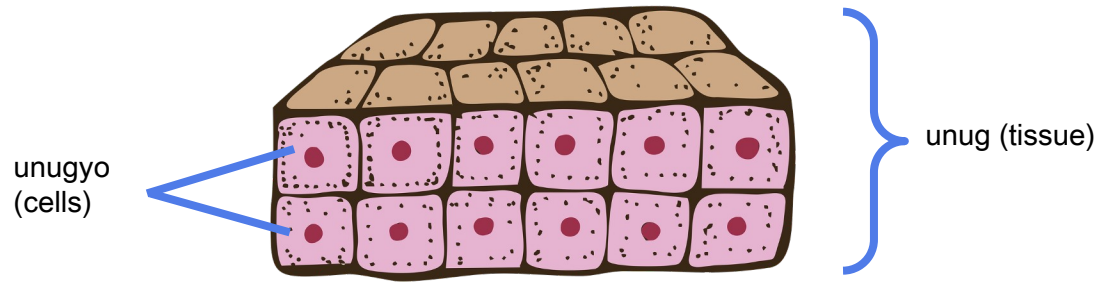


xayawaan



aragti weyneyn (magnified) unugyada (cells) ee ka sameysan wadnaha xayawaanka

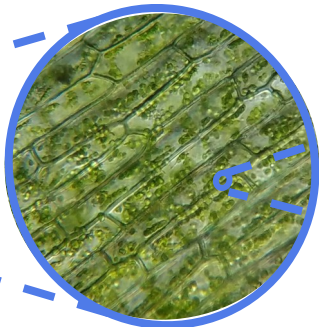
Dadka, xayawaanka kale, iyo dhirta, kooxaha unugyada (cells) isku midka ah waxay si wada jir ah u shaqeeyaan unugyada (tissues). Kooxaha unugyada (tissues) si wada jir ah u shaqeeya si ay u gutaan hawl gaar ah waxaa loo yaqaan xubno (organs).



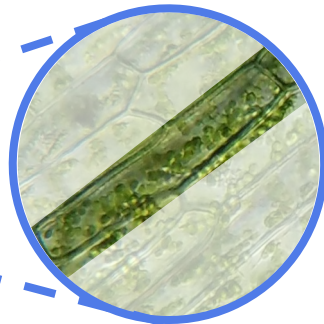
Dhammaan unugyadayada (tissues), tusaale ahaan murqaha iyo lafaha; iyo dhammaan xubnaheena (organs) sida wadnaha iyo maqaarka, waxay ka samaysan yihiin unugyo (cells).



dhir



unugyada (cells) sameeya caleemaha dhirta



hal unug (cell) oo dhir ah

Unugyadu (cells) waa nool sababtoo ah waxay fuliyaan dhammaan hababka guud ee noolaha (organisms).

Kee ka mid ah hababkan guud ayaad xusuusan kartaa?

Noolaha (organisms) wuxuu ka kooban yahay unugyo (cells)



Hubi

Bayaanka (statement) kee ee ku saabsan noolaha (organisms) waa run?

- a** noolaha (organism) nool wuxuu ka kooban yahay unugyo (cells)
- b** noolaha (organism) nool wuxuu ka kooban yahay  unugyo (cells)
- c** ma jiraan unugyo (cells) gudaha noolaha (organism) nool

Bayaannada (statements) kee ayaad u malaynaysaa inay sax yihiin, kuwaasna khaldan yihiin?

a

Xayawaanku waxay ka kooban yihiin unugyo (cells).

b

Dhammaan noolaha (organisms) nool waxay ka kooban yihiin unugyo (cells).

c

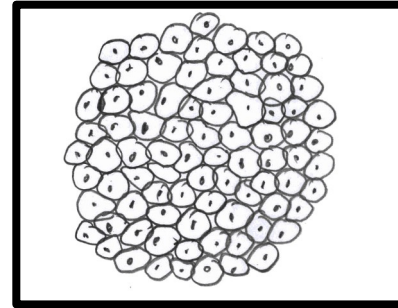
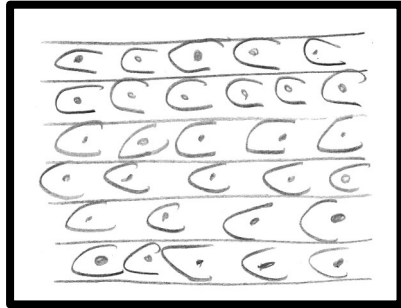
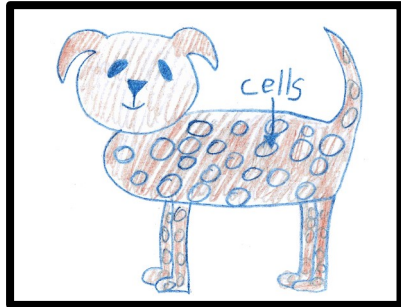
Unugyadu (cells) caadi ahaan way ku filan yihiin inaan aragno iyagoon weyneyn (magnifying).

d

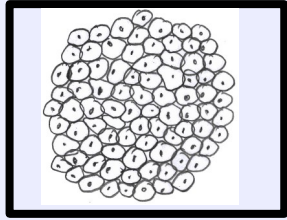
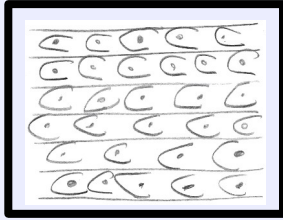
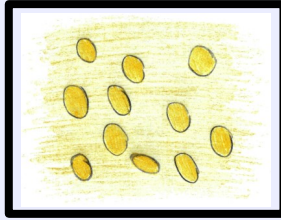
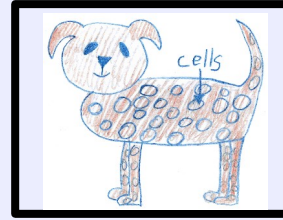
Unugyadu (cells) waxay la mid yihiin Lego® - waa dhismo (building blocks) oo aan noolayn.

Waxaan ahay hubaa inay sax tahay	I qiyaasa a inay sax tahay	I qiyaasa a inay khald tahay	Waxaan ahay hubaa inay khald tahay
☒	☒	☐	☐
☒	☒	☐	☐
☐	☐	☒	☒
☐	☐	☒	☒

Qaar ka mid ah ardayda ayaa la weydiiyay inay sawiraan unugyo xayawaan (animal cells) oo ku jira unug (tissue).

**Caasha****Yacquub****Layla****Axmed**

Kee yahay sawirka ugu fiican ee unugyada xayawaanka (animal cells) ee unugga (tissue), iyo sababta?

**Yacquub****Caasha****Axmed****Layla**

Kee yahay sawirka ugu fiican ee unugyada xayawaanka (animal cells) ee unugga (tissue), iyo sababta?

- Sawirka Yacquub ayaa ugu fiican.
- Unugyadu (cells) waxay isku urursan yihiin sida dhismo (building blocks) si ay u sameeyaan unug (tissue).
- Unug kasta (cell) waa qaab dhismeed (structure) ama cutub (unit) dhammaystiran.
- Unugyada Caasha waa qaab dhismeedyo (structures) aan dhammaystirnayn.
- Unugyada Axmed waa kala firdhiyeen oo isku urursan sida dhismo (building blocks).
- Unugyada Layla aad bay u weyn yihiin oo waxay noqon lahaayeen kuwo aan arki karno iyagoon weyneyn (magnifying).

Qaabka casharka

Ku fiirsashada unugyada (cells) iyadoo la isticmaalayo mikroskoob iftiin (light microscope)



Noole (organism) waxay ka kooban yihiin unugyo (cells)



Mikroskoobyada (Microscopes) waxaa loo isticmaalaa in lagu eego unugyada (cells)



Isticmaalka mikroskoob (microscope)

Inta badan unugyada (cells) aad bay u yar yihiin in aan ku arki karno indhaha (unaided eyes).

Unugyada (cells) waa la weynayn karaa (magnified) iyadoo la isticmaalayo muraayad (lens).

Muraayad weyneyn (magnifying glass) waxay leedahay muraayad (lens), laakiin xataa tani kama dhigi karto unugyada (cells) kuwa ku filan oo aan arki karno.

muraayad (lens)

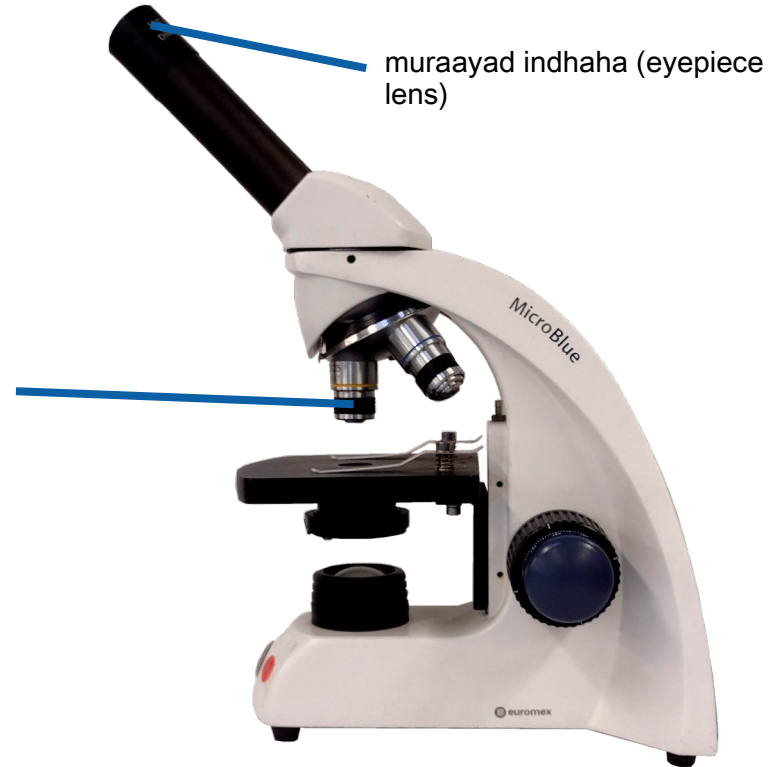


Mikroskoob iftiin (light microscope) wuxuu leeyahay laba muraayadood oo weyneyn (magnifying lenses) si unugyada (cells) ugu weynaadaan oo aan ku arki karno indhaha (eyes).

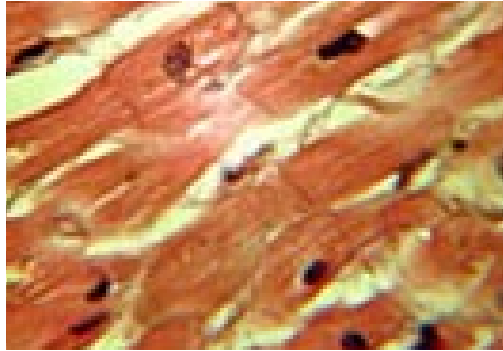
Muunad (sample) unug (tissue) waa la weynayn karaa (magnified) si unugyada (cells) gaarka ah loo arko.

muraayad ujeeddo
(objective lens)

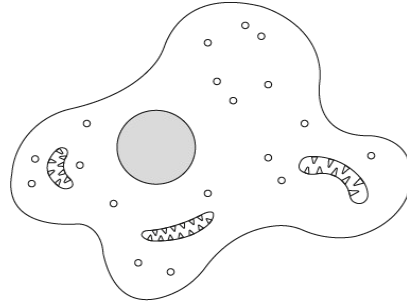
muraayad indhaha (eyepiece
lens)



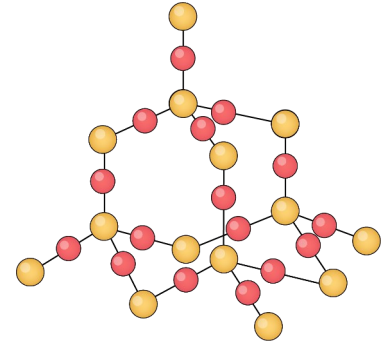
Mikroskoob iftiin (light microscope) waxaan ku arki karnaa qaar ka mid ah qaababka unugyada (cell structures), laakiin kuma weynayn karno (magnify) si aan u aragno atamka (atoms) iyo molikyuulada (molecules).



unugyada xayawaanka ee lagu arko mikroskoob iftiin (light microscope)



jaantus unug oo ay ku jiraan qaab dhismeedkiisa gudaha



molikyuul (molecule)

Sawirrada ma aha cabbir sax ah (not to scale)

Mikroskoobyada (Microscopes) waxaa loo isticmaalaa in lagu eego unugyada (cells)



Hubi

Kuwee ka mid ah kuwan aad kaliya ku arki kartaa adigoo isticmaalaya mikroskoob iftiin (light microscope)?

a unug (cell) ✓

b moleekul (molecule)

c unugyo (tissue)

d biyo (water)

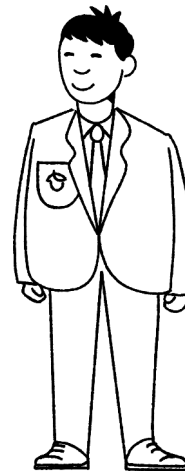
Cali iyo Nuur waxay ka wada hadlayaan ujeedooyinkooda isticmaalka mikroskoob iftiin (light microscope).



Cali

Waxaan isticmaali doonaa mikroskoob iftiin (light microscope) si aan u raadiyo moleekul biyo (water molecule) gudaha unug (cell).

Waxaan isticmaali doonaa mikroskoob iftiin (light microscope) si aan u eego hal unug (cell).



Nuur

U sharax Cali iyo Nuur inay awoodi doonaan inay gaadhaan ujeedooyinkooda iyagoo isticmaalaya mikroskoob iftiin (light microscope), iyo sababta.



Cali: Waxaan isticmaali doonaa microscope iftiin (light microscope) si aan u raadiyo molecule biyo (water molecule) unug (cell) gudahiisa.

Nuur: Waxaan isticmaali doonaa microscope iftiin (light microscope) si aan u eego hal unug (single cell).

U sharax Cali iyo Nuur inay awoodi doonaan inay gaadhaan ujeedooyinkooda iyagoo isticmaalaya mikroskoob iftiin (light microscope), iyo sababta.

- Cali ma arki doono wax moleekul biyo (water molecules) ah.
- Moleekulada (molecules) aad bay u yar yihiin.
- Muraayadaha (lenses) mikroskoobka (microscope) ma weynayn karaan moleekulada (molecules) si loo arko.
- Nuur wuu arki karaa qaab dhismeedka unugga (cell).
- Muraayadaha microscope-ku waxay weynayn karaan (magnify) unugyada (cells) si loo arko.
- Isagu ma arki karo dhammaan qaab-dhismeedka (structures) unugga (cell) gudahiisa.

Qaabka casharka

Ku fiirsashada unugyada (cells) iyadoo la isticmaalayo microscope iftiin (light microscope)



Nooleyaasha (living organisms) waxay ka kooban yihiin unugyo (cells)



Microscope-yada waxaa loo isticmaalaa in lagu arko unugyada (cells)



Isticmaalka microscope-ka

Tani waa jaantus (diagram) calaamadeysan oo microscope iftiin (light microscope) ah.

muraayadda indhaha
(eyepiece lens)

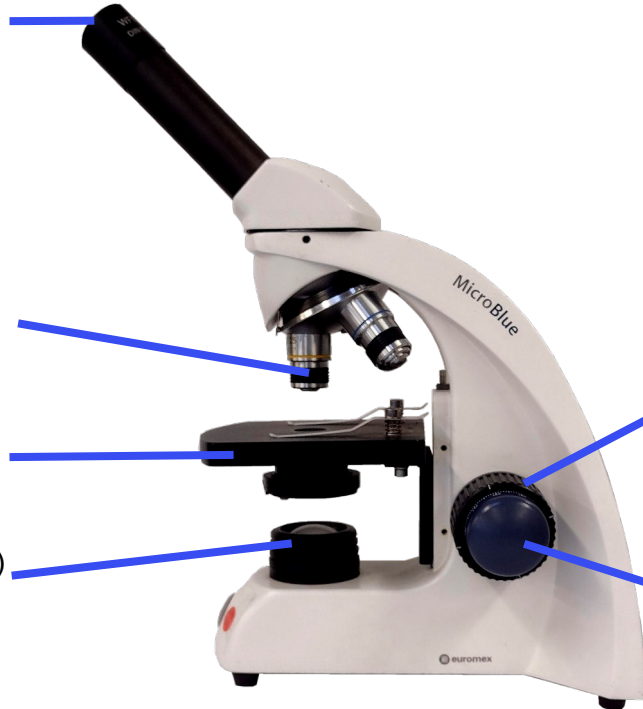
muraayadda ujeedada
(objective lens)

masraxa
(stage)

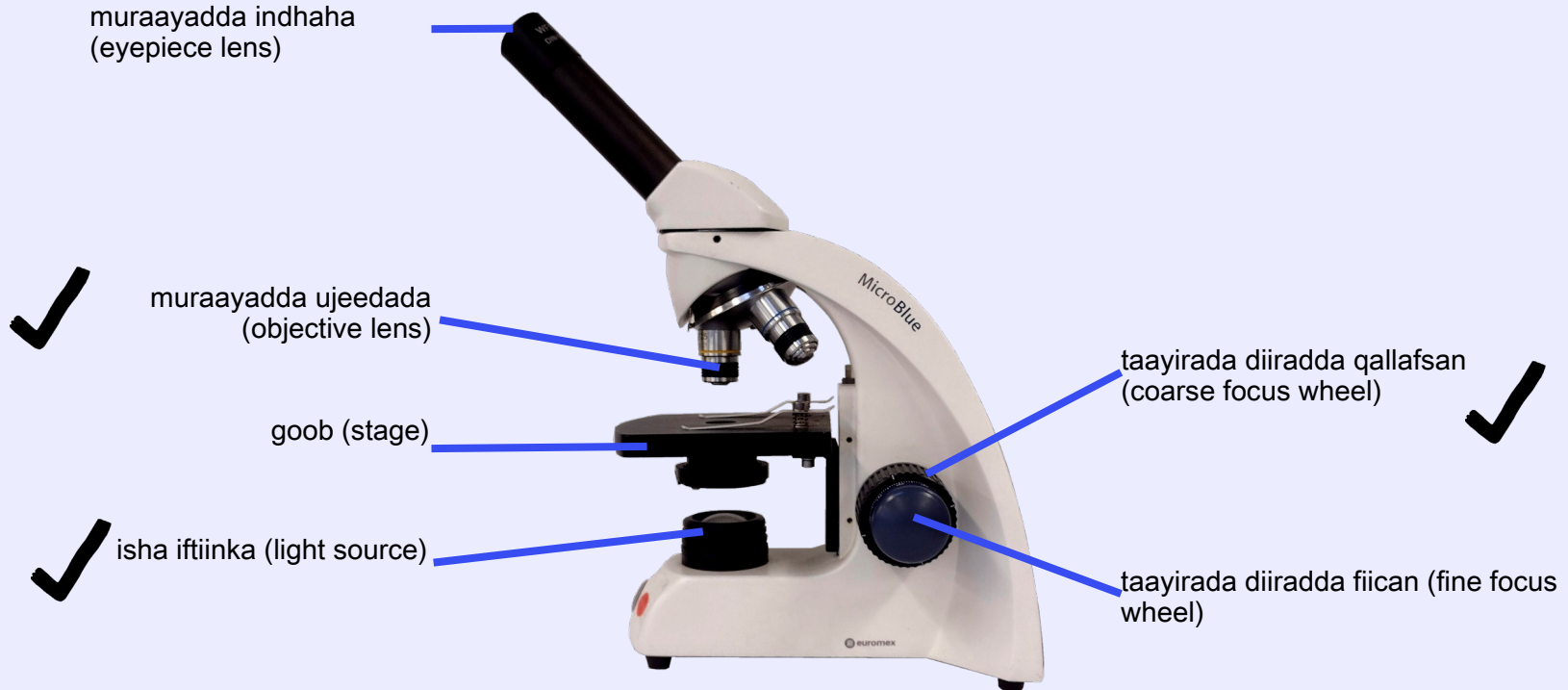
il iftiin (light source)

taayirada diiradda qallafsan (coarse
focus wheel)

taayirada diiradda fiican (fine focus
wheel)



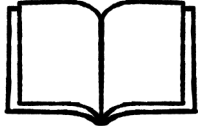
Ku dar calaamadaha (labels) maqan qaybaha microscope-ka



Daawo muuqaalka si aad u aragto sida loo isticmaalo microscope-ka si aad u fiiriso unugyada (cells) ku jira muunadda (specimen).

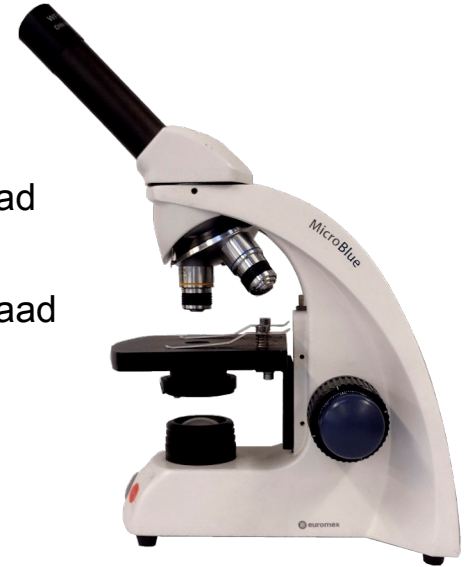


Watch ▶



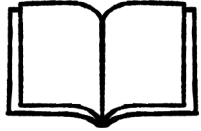
Habka isticmaalka microscope-ka waa:

1. U wareeji lens-ka (objective lens) ee hooseeya (lowest magnification).
2. Dhig slide-ga goobta (stage) oo hoos yimaada qabsadaha (clips).
3. Daar isha iftiinka (light source).
4. Adigoo ka eegaya dhinaca, u wareeji giraangirta (coarse focus wheel) si aad goobta (stage) kor ugu qaaddo oo u dhowaato lens-ka (objective lens).
5. Adigoo eegaya eyepiece-ka, u wareeji giraangirta (coarse focus wheel) si aad muunaddaada (specimen) u soo saarto.
6. U wareeji giraangirta (fine focus wheel) si aad sawirka u caddeyso.
7. Weyneyn (magnification) waa la kordhin karaa isagoo beddelaya lens-ka (objective lens) ee awoodda sare leh.



Dhig weedhahan si habboon oo loo isticmaalo microscope-ka si aad u fiiriso slide:

- | | | |
|----------|--|---|
| a | Isticmaal giraangirta (fine focus wheel) si aad sawirka u caddeyso. | 4 |
| b | Dhig slide-ga goobta (stage). | 2 |
| c | U wareeji lens-ka (objective lens) ee awoodda hoose (lowest power). | 1 |
| d | Isticmaal giraangirta (coarse focus wheel) si aad u fiiriso muunadda (specimen). | 3 |

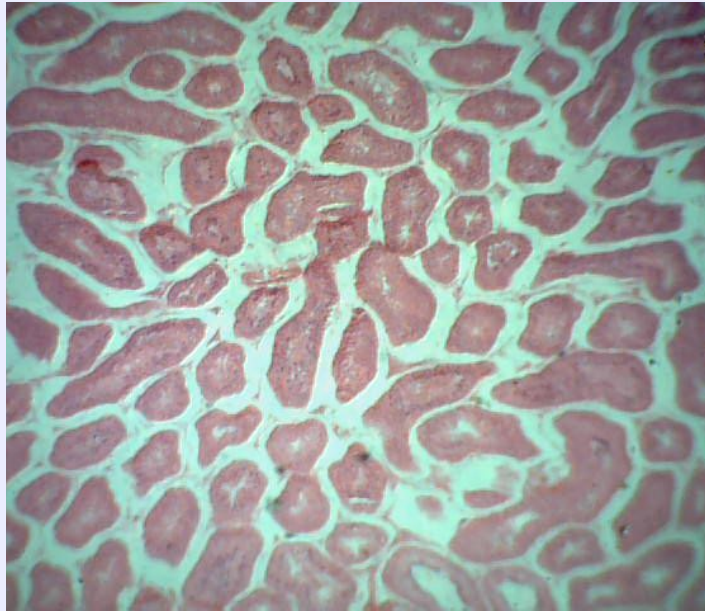


Raac habka isticmaalka microscope-ka iftiinka (light microscope) si aad:

Weyneey (magnify) oo fiiri unugyada (cells) ku jira muunadda (specimen) ee unugyada (tissue) ee dhirta ama xayawaanka.

Aqoonso hal unug (cell).

Halkan waxaa ah tusaale sawir la mid ah waxa aad ku aragtay microscope-ka iftiinka (light microscope).



unug muruq (muscle tissue)

Soo koobid

Ku fiirsashada unugyada (cells) iyadoo la isticmaalayo microscope-ka iftiinka (light microscope)

- Noolaha (organism) waxay ka kooban yihiin dhismooyin nool oo la yiraahdo unugyo (cells).
- Muunad unugyo ah (sample of cells) waxaa lagu weynayn karaa (magnified) iyadoo la isticmaalayo microscope-ka iftiinka (light microscope), si unugyada gaarka ah (individual cells) uga soo baxaan kuwa ku filan in la arko.
- Unugyadu (cells) waxay ka kooban yihiin unugyo (tissues), muunad unug (specimen of tissue) ayaa loo diyaarin karaa in lagu eego iyadoo la isticmaalayo microscope.

Si loo isticmaalo microscope-ka:

- Muunadda (specimen), oo ku taal slide-ga, waxaa la dhigaa masraxa (stage).
- Microscope-ka waxaa loo roga muraayadda ugu hooseysa ee weynaynta (lowest power objective lens).
- Muraayaddu (lens) waxay weynayn doontaa (magnify) sawirka; tani waxay ka dhigaysaa unugyada (cells) iyo qaar ka mid ah qaab-dhismeedka gudahooda kuwa ku filan in la arko.
- Iyadoo la eegayo muraayadda indhaha (eyepiece lens), taayirada weyn iyo kuwa yaryar ee diiradda (coarse and fine focus wheels) ayaa loo isticmaalaa in lagu diirado (focus) sawirka, si qaab-dhismeedka unugyada (cell structures) u noqdo kuwa cad.