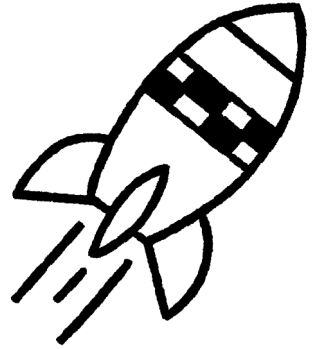


Waxyaabaha hidaha (Genetic material) iyo DNA

Sayniska

Cutub: Hidaha (Heredity) iyo DNA



Natiijo

Waxaan qeexi karaa waxa ay tahay waxyaabaha hidaha (genetic material) iyo halka ay ku kaydsan yihiin xayawaanka, dhirta iyo noolaha yaryar (microorganisms).

Erayada muhiimka ah

cytoplasm (cytoplasm)

nucleus (nucleus)

bacteria (bacteria)

DNA (DNA)

**koodhka hidaha (genetic
code)**

Erayada muhiimka ah

Cytoplasm (cytoplasm) waa walaxda jelly-ga ah ee gudaha unugga halkaas oo ay ka dhacaan falcelinta kiimikaad ee unugga.

Nucleus (nucleus) wuxuu kaydiyaa waxyaabaha hidaha (genetic material) ee unugyada dhirta, xayawaanka iyo fangaska.

Bacteria (bacteria) waa noole unug keliya (unicellular microorganisms).

Waxyaabaha hidaha (genetic material) waxay ka samaysan yihiin kiimiko la yiraahdo DNA (DNA).

DNA (DNA) waxay ka dhisan tahay afar molecule oo kala duwan (oo la yiraahdo A, T, C iyo G), kuwaas oo sameeya koodhka hidaha (genetic code) loo isticmaalo tilmaamo lagu dhiso oo lagu xakameeyo noolaha (organisms).

Waxyaabaha hidaha (genetic material) iyo DNA



Kaydinta waxyaabaha hidaha (genetic material)



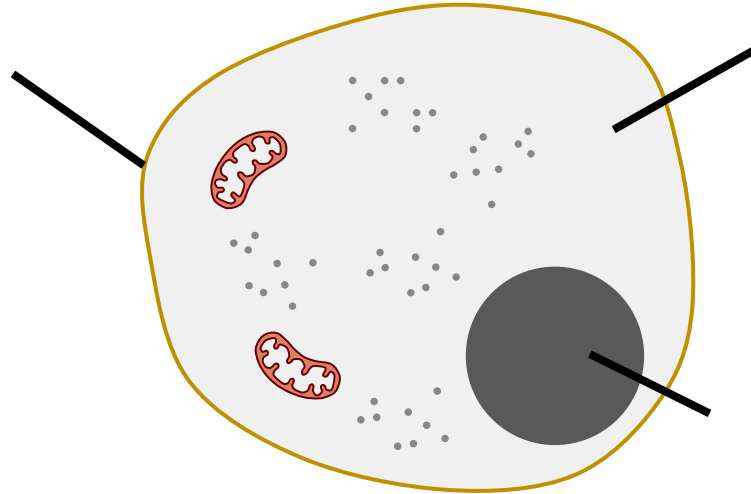
Doorka waxyaabaha hidaha (genetic material)



DNA (DNA)

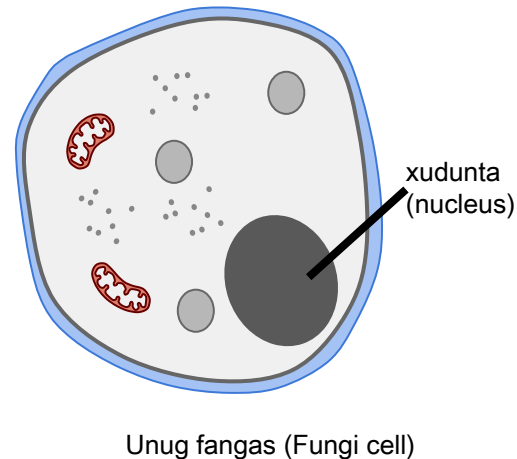
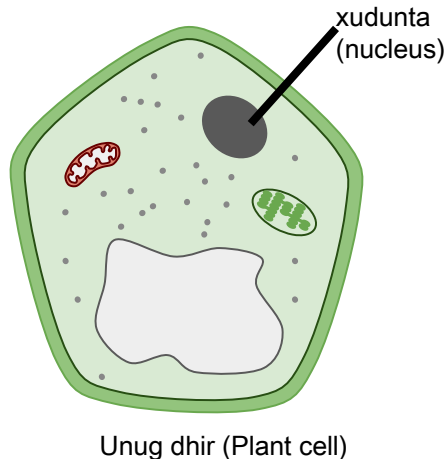
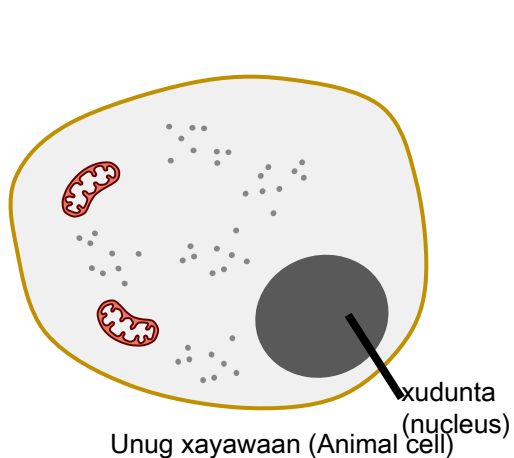
Kaydinta walxaha hidde-sidaha (Storage of genetic material)

Dhammaan unugyada dhirta, xayawaanka iyo fangaska waxay ka kooban yihiin qaab-dhismeed ay ka mid yihiin xuubka unugga (cell membrane), cytoplasm (cytoplasm) iyo nucleus (nucleus).



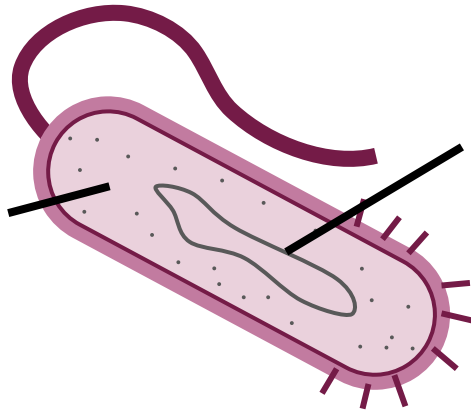
Unug xayawaan (Animal cell)

Walxaha hidde-sidaha waxaa lagu kaydiyaa xudunta (nucleus) unugyada xayawaanka, dhirta iyo fangaska.



Bakteeriyadu waa noole (organism) unug keliya (unicellular).

Ma laha xudun (nucleus). Walxahooda hidde-sidaha waxaa lagu kaydiyaa dheecaanka unugga (cytoplasm).



Kaydinta walxaha hidde-sidaha (Storage of genetic material)

Unugyada dhirta (Plant cells)

- a** Unugyada dhirta (Plant cells) ✓
- b** Unugyada xayawaanka (Animal cells) ✓
- c** Unugyada bakteeriyada (Bacterial cells)
- d** Unugyada fangaska (Fungi cells) ✓

Izzy, Sam iyo Alex waxay ka wada hadlayaan sida maadada hidde (genetic material) loogu kaydiyo unugyada (cells).



Izzy

Bakteeriyada (bacteria) iyo fangaska (fungi) ma noolaan, sidaas darteed uma baahna maadada hidde (genetic material). Unugyada xayawaanka iyo dhirta waxay maadada hidde ku kaydiyaan xudunta (nucleus).

Dhammaan unugyada (cells) waxay maadada hidde (genetic material) ku kaydiyaan xudunta (nucleus) si ay u ilaashaan.

Unugyada bakteeriyada (bacteria) ma laha xudun (nucleus) maxaa yeelay ma laha maadada hidde (genetic material). Waa hal unug oo keliya, sidaas darteed ma laha wax astaamo ah.



Sam



Alex

Dhammaan fikradaha ardaydu waa qaldan yihiin qaybo ka mid ah. Qaad hadal kasta oo arday ah oo ku qor sixid.



Qaad hadal kasta oo arday ah oo ku qor sixid.

Izzy: Bakteeriyada (bacteria) iyo fangaska (fungi) waa noole, sidaas darteed waxay u baahan yihiin maadada hidde (genetic material). Unugyada xayawaanka, dhirta iyo fangaska waxay maadada hidde ku kaydiyaan xudunta (nucleus).

Sam: Unugyada xayawaanka, dhirta iyo fangaska waxay maadada hidde (genetic material) ku kaydiyaan xudunta (nucleus) si ay u ilaashaan, laakiin bakteeriyadu ma kaydiso.

Alex: Unugyada bakteeriyada (bacteria) ma laha xudun (nucleus), laakiin waxay leeyihiin maadada hidde (genetic material). Waxay maadada hidde ku kaydiyaan cytoplasm-ka.

Maadada hidde (genetic material) iyo DNA



Kaydinta maadada hidde (genetic material)



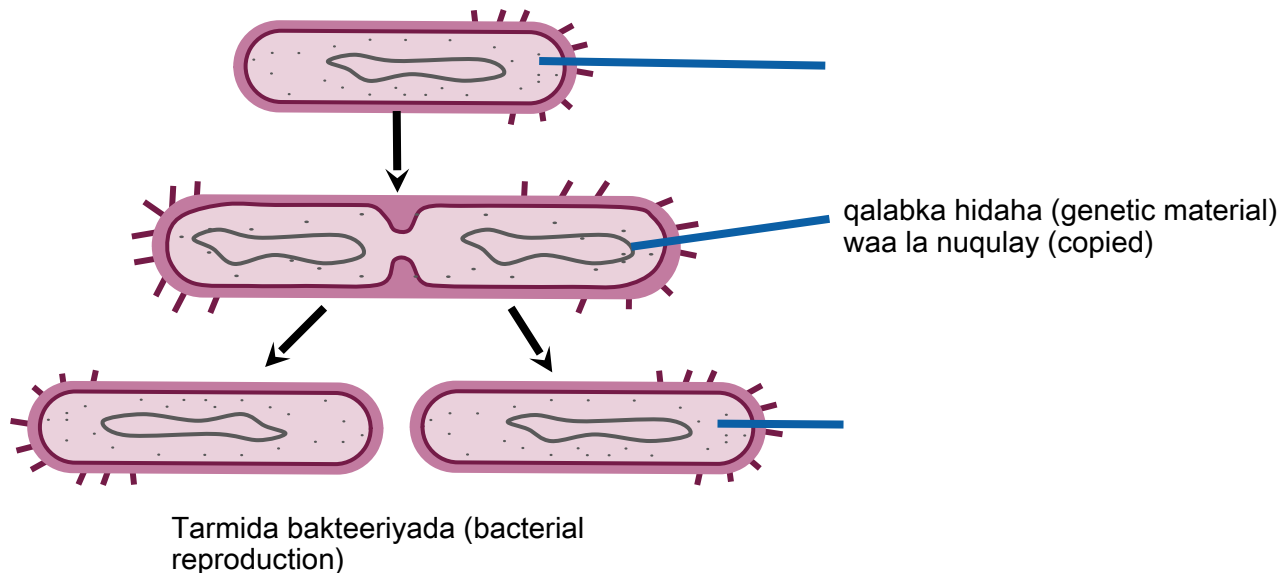
Doorka maadada hidde (genetic material)



DNA

Maadada hidde (genetic material) waxay bixisaa tilmaamaha loo isticmaalo in lagu dhiso astaamaha la iska dhaxlo, iyo in lagu xakameeyo hababka nolosha, dhammaan noolaha (organisms).

Inta lagu jiro taranka (reproduction), qalabka hidaha (genetic material) waxaa loo gudbiyaa faraska (offspring) waalidkood (parents).



Qaar badan oo ka mid ah sifooyinka (features) la dhaxlo (inherited) waa la arki karaa marka faraska (offspring) la soo saaro.

Qaar ka mid ah sifooyinka (features) noolaha (organisms) lama arko isla markiiba faraska (offspring).

Qaar ka mid ah qalabka hidaha (genetic material) waa tilmaamo (instructions) hababka (processes) sida dheefshiidka (digestion) ama koritaanka (growth).



Run mise been?

Sifooyinka (features) ay faraska (offspring) la wadaagaan waalidkood (parents) waxaa lagu gudbiyaa tilmaamo (instruction) ku jira qalabka hidaha (genetic material).



Run



Been

Sabab u sheeg jawaabtaada

a Dhammaan sifooyinka (features) uu noole (organism) leeyahay waxaa laga soo gudbiyay waalidkood (parents).

b Dhammaan sifooyinka (features) iyo hababka (processes) la dhaxlo (inherited) ee uu noole (organism) leeyahay waxaa laga soo gudbiyay waalidkood (parents).



Doorka qalabka hidaha (Role of genetic material)



Hubi

Waa kuwee bayaannada aad u malaynaysaa inay sax yihiin, iyo kuwa aad u malaynaysaa inay qalad yihiin?

a

Baktiiriyada waxay leeyihiin maado hidde (genetic material).

b

Maado hidde (genetic material) waxay bixisaa tilmaamo astaamaha iyo hababka.

c

Maado hidde (genetic material) waxaa lagu kaydin karaa oo keliya xudunta (nucleus).

d

Maado hidde (genetic material) waxaa laga gudbin karaa bakteeriyada waalidka ilaa faraca.

Waxaan ahay hubaa inay sax tahay (sure this is right)	I u malaynaya a inay sax tahay (think this is right)	I u malaynaya a inay qalad tahay (think this is wrong)	Waxaan ahay hubaa inay qalad tahay (sure this is wrong)
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☒	☐	☐	☐
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☒	☐	☐	☐
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☐	☐	☐	☒
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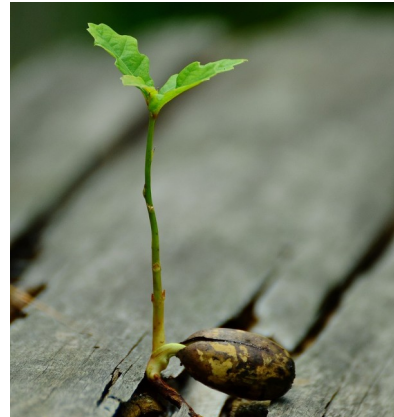
☒	☐	☐	☐
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so

1. Sharax doorka maadada hidde (genetic material) ee isku ekaanshaha eeygan iyo eeygiisa yar.



2. Sharax doorka maadada hidde (genetic material) ee soo saarista dhirta cusub.





1. Sharax doorka maadada hidde (genetic material) ee isku ekaanshaha eeygan iyo eeyga yar.
 - Maadada hidde (genetic material) waxaa laga gudbiyaa eeyga ilaa eeyga yar inta lagu jiro taranka.
 - Maadada hidde (genetic material) waxay bixisaa tilmaamo dhismaha astaamaha la iska dhaxlo iyo xakamaynta hababka nolosha.
 - Astaamaha eeyga iyo eeygiisa yar way isku mid yihiin sababtoo ah eeyga yar wuxuu qayb ka helay maadada hidde (genetic material) ee eeyga.

2. Sharax doorka maadada hidde (genetic material) ee soo saarista dhirta cusub.
 - Maadada hidde (genetic material) waxaa laga gudbiyaa dhirta ilaa iniinta (seed).
 - Dhirtu waxay ka soo baxdaa iniinta (seed).
 - Maadada hidde (genetic material) waxay bixisaa tilmaamo astaamaha iyo xakamaynta hababka nolosha ee dhirta cusub.

Maadada hidde (genetic material) iyo DNA



Kaydinta maadada hidde (genetic material)

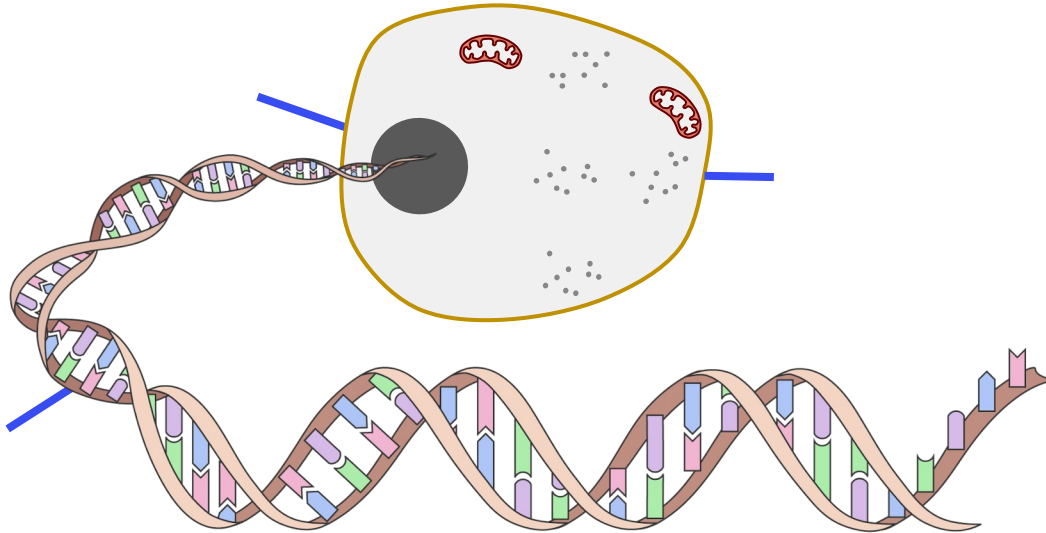


Doorka maadada hidde (genetic material)



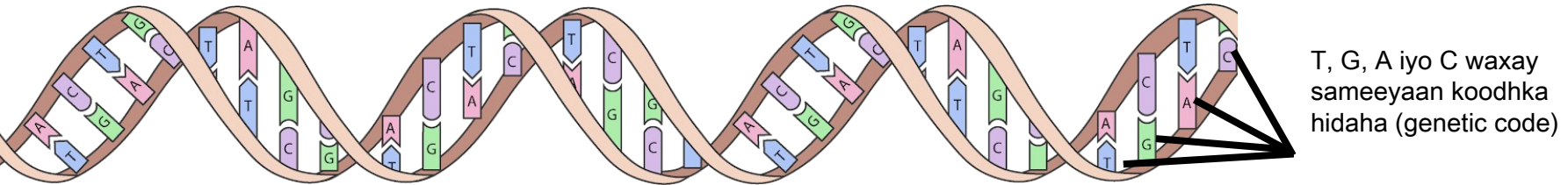
DNA

Walaxda hidaha (genetic material) ee dhammaan noolaha (organisms) waxay ka samaysan tahay walax kiimiko (chemical substance).



DNA waa molekyuul dheer (long molecule) oo ka samaysan silsilad (chain) oo ah cutubyo kiimiko oo yaryar (smaller chemical units).

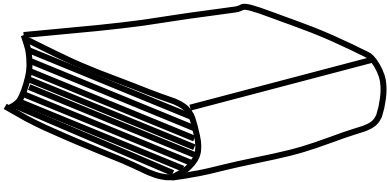
Silsiladda (chain) waxay ka dhisan tahay afar nooc oo kala duwan oo cutubyo kiimiko ah (chemical units), kuwaas oo saynisyahannadu u yaqaannaan A, T, C iyo G.



Koodhka (code) wuxuu bixiyaa tilmaamaha loo isticmaalo in lagu dhiso sifooyinka la dhaxlo (inherited features), oo lagu xakameeyo hababka nolosha (life processes), dhammaan noolaha (living organisms).

Tusaale (analogy) ayaa naga caawin kara inaan fahanno tan.

Buug cunto karis (recipe book)
wuxuu ka samaysan yahay
waraaq (paper).



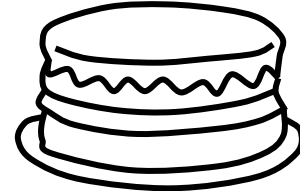
Walaxda hidaha (genetic
material) waxay ka samaysan
tahay DNA.

Buugga cunto karista (recipe book)
wuxuu kaydiyaa tilmaamo
(instructions), oo lagu qoray iyadoo la
isticmaalayo xuruuf (letters) (A ilaa Z).



Walaxda hidaha (genetic material) waxay
kaydisaa tilmaamo (instructions), oo lagu qoray
iyadoo la isticmaalayo molekyuulo (molecules)
(A, T, C iyo G).

Tilmaamaha cunto karista (recipe
instructions) waxaa loo isticmaali karaa
in lagu sameeyo keeg (cake).



Tilmaamaha hidaha (genetic
instructions) waxaa loo isticmaali karaa
in lagu sameeyo noole (living
organism).

Run mise been?

DNA iyo koodhka hidaha (genetic code) waa isku shay.



Run



Been



Sabab u sheeg jawaabtaada

a

DNA waa walax kiimiko (chemical substance) oo kaydisa koodhka hidaha (genetic code).

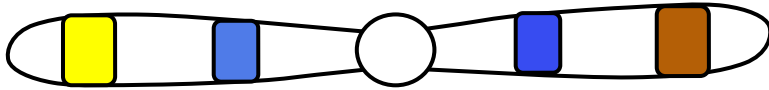


b

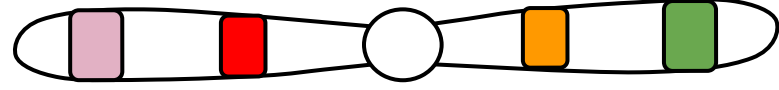
DNA waa magac kale oo loo yaqaan koodhka hidaha (genetic code).

Labo eey oo yaryar mid kasta wuxuu leeyahay koodh hidde oo kala duwan.

1. jaalle (yellow) guduudan (purple) buluug (blue) bunnii (brown)



2. casaan (pink) guduud (red) oranji (orange) cagaar (green)



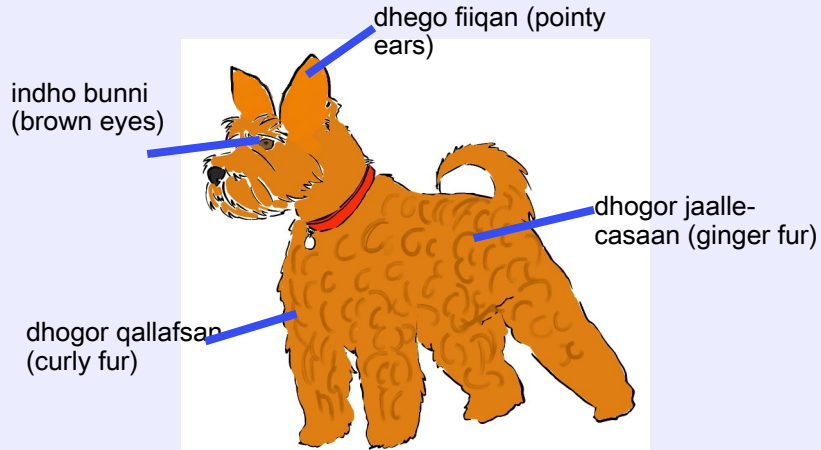
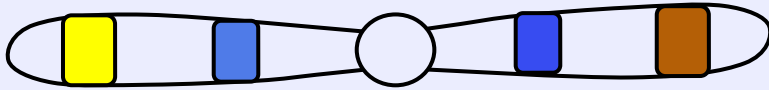
sifo (feature)	koodh (code)
indho bunnii (brown eyes)	buluug (blue)
indho buluug (blue eyes)	oranji (orange)
dhogor qalloocan (curly fur)	guduud (purple)
dhogor toosan (straight fur)	casaan (red)

sifo (feature)	koodh (code)
dhogor madow (black fur)	cagaar (green)
dhogor casaan (ginger fur)	bunnii (brown)
dhego laalaada (floppy ears)	biriin (pink)
dhego fiqan (pointy ears)	jaalle (yellow)

Isticmaal codes-ka ku jira shaxda si aad u sawirto labada eey (puppies) oo leh astaamahooda saxda ah.

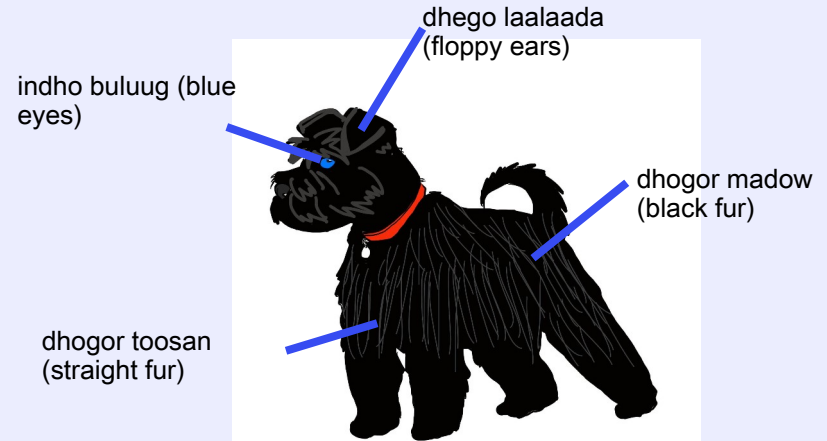
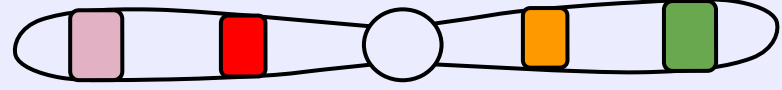
Eeyga 1 code-kiisa:

jaalle (yellow) guduudan (purple) blue brown



Eeyga 2 code-kiisa:

pink red orange green



Dhammaan unugyada dhirta, xayawaanka iyo fangaska waxay ka kooban yihiin qaybo ay ka mid yihiin xuub unug (cell membrane), cytoplasm iyo nucleus; nucleus-ku wuxuu kaydiyaa maadada hidde-side (genetic material) ee noolaha (organism).

Bakteeriyadu waa noole (organism) hal unug ah oo aan lahayn nucleus. Maadadooda hidde-side (genetic material) waxay ku kaydsan tahay cytoplasm-ka unugga.

Maadada hidde-side (genetic material) waxay ka samaysan tahay kiimiko la yiraahdo DNA.

DNA waxay ka dhisantahay afar molecule oo kala duwan (oo la yiraahdo A, T, C iyo G), kuwaas oo sameeya kood hidde-side (genetic code) loo isticmaalo tilmaamo lagu dhiso sifooyin la iska dhaxlo iyo xakamaynta hababka nolosha ee noolaha (organism).