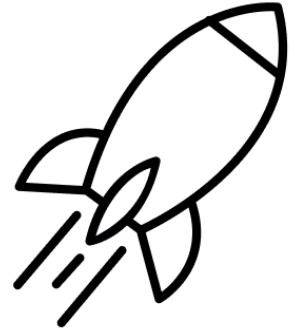


Sawirka cuntada (Photosynthesis)



Sayniska

Cutub: Nafaqada dhirta iyo sawirka cuntada (Photosynthesis)

Natiijo

Waxaan aqoonsan karaa fal-celiyeyasha (reactants) iyo waxsoosaarka (products) ee sawirka cuntada (Photosynthesis) waxaana qori karaa soo koob erayo ah oo ku saabsan habka.

Erayada muhiimka ah

Jawaabaha:

soosaare (producer)
falgal kiimiko (chemical reaction)

Erayada muhiimka ah

Soosaare (producer) waa noole (organism) sameysta cuntadiisa.

Falgal kiimiko (chemical reaction) dhexdiisa, walxaha waa la kala jajabiyaa waxayna falgalaan si ay u sameeyaan walxo cusub.

Sawirka cuntada (Photosynthesis) waa taxane falgal kiimiko (chemical reaction) ah oo ay soosaarayaashu (producers) ku sameystaan cuntadooda.

Kaarboon labo ogsaydh (carbon dioxide) waa iskudhis ka kooban kaarboon iyo ogsaydh, waa gaas heerkulka qolka, waana fal-celiye (reactant) sawirka cuntada (Photosynthesis).

Glucose waa sonkor (karbohaydrayt) oo uu soo saaro sawirka cuntada (Photosynthesis).

Qaabka casharka

Sawirka cuntada (Photosynthesis)



Sida soosaarayaashu (producers) u sameystaan cuntadooda



Fal-celiyeyasha (reactants) iyo waxsoosaarka (products) ee sawirka cuntada (Photosynthesis)

Sida soosaarayaashu (producers) u sameystaan cuntadooda

Dhirta iyo soosaarayaasha kale (producers) waxay sameystaan cuntadooda.

Cuntada waxaa lagu sameeyaa hab loo yaqaan sawirka cuntada (Photosynthesis).

Habkani wuxuu ku dhacaa caleemaha iyo qaybaha kale ee dhirta ee ka sarreeya dhulka.



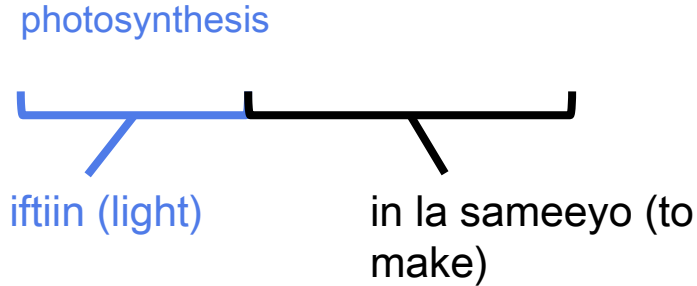
caleen geed maple ah

Sida soosaarayaasha (producers) u sameeyaan cuntadooda



Sharaxaad

Photosynthesis wuxuu dhici karaa oo kaliya marka uu jiro iftiin (light).



Waa maxay ereyada kale ee aad taqaanid oo ay ku jirto 'photo'?



Sida soosaarayaasha (producers) u sameeyaan cuntadooda



Run mise been?

Photosynthesis wuxuu ku dhacaa xididdada dhirta.



Run



Been



Sabab u sheeg jawaabtaada



Photosynthesis wuxuu ku dhacaa caleemaha dhirta marka uu jiro iftiin (light). ✓



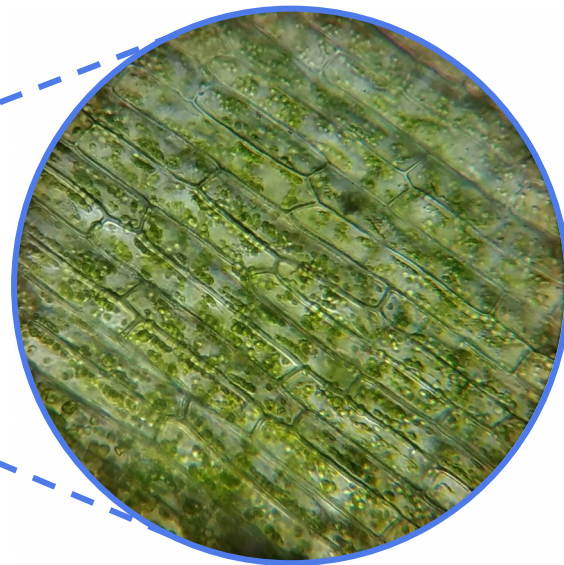
Photosynthesis wuxuu ku dhacaa qaybaha dhirta oo dhan.

Caleemaha waxay ka kooban yihiin unugyo (cells).

Photosynthesis wuxuu ka dhacaa gudaha unugyada (cells).



caleen geed maple ah (leaf of a maple tree)



unugyada caleenta (leaf cells) oo lagu arkay microscope

Sida soosaarayaasha (producers) u sameeyaan cuntadooda

Isku xidh bilowga saxda ah ee jumladda... ...iyo dhamaadka saxda ah ee jumladda si aad u samaysato hal jumlad.

Cuntada dhirta waxaa laga sameeyaa inta u dhaxaysa unugyada dhirta (plant cells)...

...iyadoo la adeegsanayo habka neefsiga unugyada (cellular respiration).

Cuntada dhirta waxaa laga sameeyaa unugyada dhirta (plant cells)...

...iyada oo loo marayo habka photosynthesis.

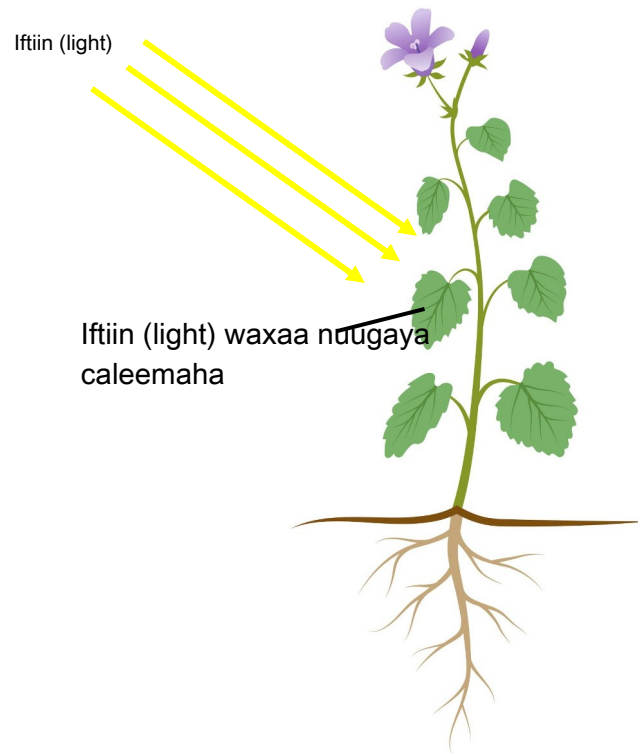
Cuntada dhirta waxaa laga sameeyaa gudaha unugyada dhirta (plant cells)...

...iyadoo la adeegsanayo habka dheefshiidka (digestion).

Photosynthesis wuxuu u baahan yahay iftiin (light).

Iftiin (light) wuxuu ka wareejiyaa tamarta (energy) isha iftiinka una gudbiyaa unugyada caleenta.

Tani waxay siisaa tamarta (energy) loo baahan yahay si photosynthesis uu u dhaco.



Yaa run ah oo ku saabsan iftiinka (light) iyo photosynthesis?

A Iftiinku (light) wuxuu abuuraa unugyo loogu talagalay photosynthesis.

B Iftiinka (light) waxaa sameeya photosynthesis.

C Iftiinku (light) wuxuu bixiyaa tamarta (energy) loo baahan yahay photosynthesis. ✓

Isra waxay haysatay geed guri ah (houseplant) muddo dheer.

Weli waa mid aad u yar.

Waxay ku haystaa gees mugdi ah oo qolka ah, oo ka fog daaqadda.



Geedka guriga ee Isra

Isra waxay go'aansatay inay geedka u dhaqaaqdo si uu ugu xirnaado daaqadda.

Sharax sababta tani uga caawin doonto geedka inuu weynaado.

In geedka guriga la dhigo daaqadda agteeda waxay ka caawin doontaa geedka inuu weynaado sababtoo ah:

Wuxuu heli doonaa iftiin (light) badan oo ka yimaada qorraxda (Sun).

Ifku wuxuu u kala wareejiyaa tamarta (energy) Qorraxda unugyada caleenta (leaf cells) ee noolaha (organism).

Tani waxay siisaa tamar (energy) falgalka (reaction) sawir-iftiin (photosynthesis).

Sawir-iftiinku (photosynthesis) wuxuu sameeyaa cuntada (food) noolaha (organism).

Cuntadan (food) waxaa loo isticmaalaa sida:

il (source) walxaha (materials) koritaanka (growth)

il (source) tamarta (energy) hab-nololeedyada kale (other life processes).



Qaabka casharka

Sawir-iftiin (Photosynthesis)

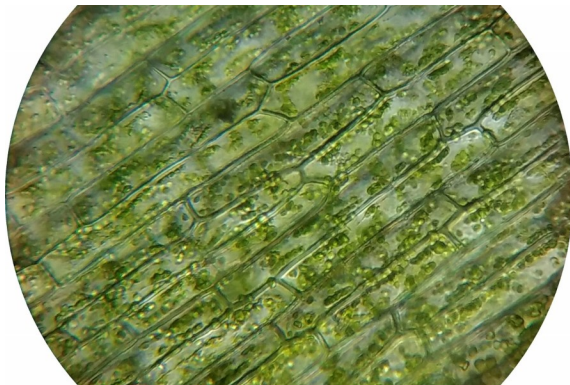


Sida soosaarayaasha (producers) u sameeyaan cuntadooda (food)



Fal-celiyeyaasha (reactants) iyo wax-soo-saarka (products) sawir-iftiinka (photosynthesis)

Sawir-iftiinku (photosynthesis) waa taxane (series) falgal (reaction) kiimikada (chemical) oo ka dhaca gudaha unugyada caleenta (leaf cells).



unugyada caleenta (leaf cells) oo lagu arkay mikroskoob (microscope)

Inta lagu jiro falgalka kiimikada (chemical reactions):

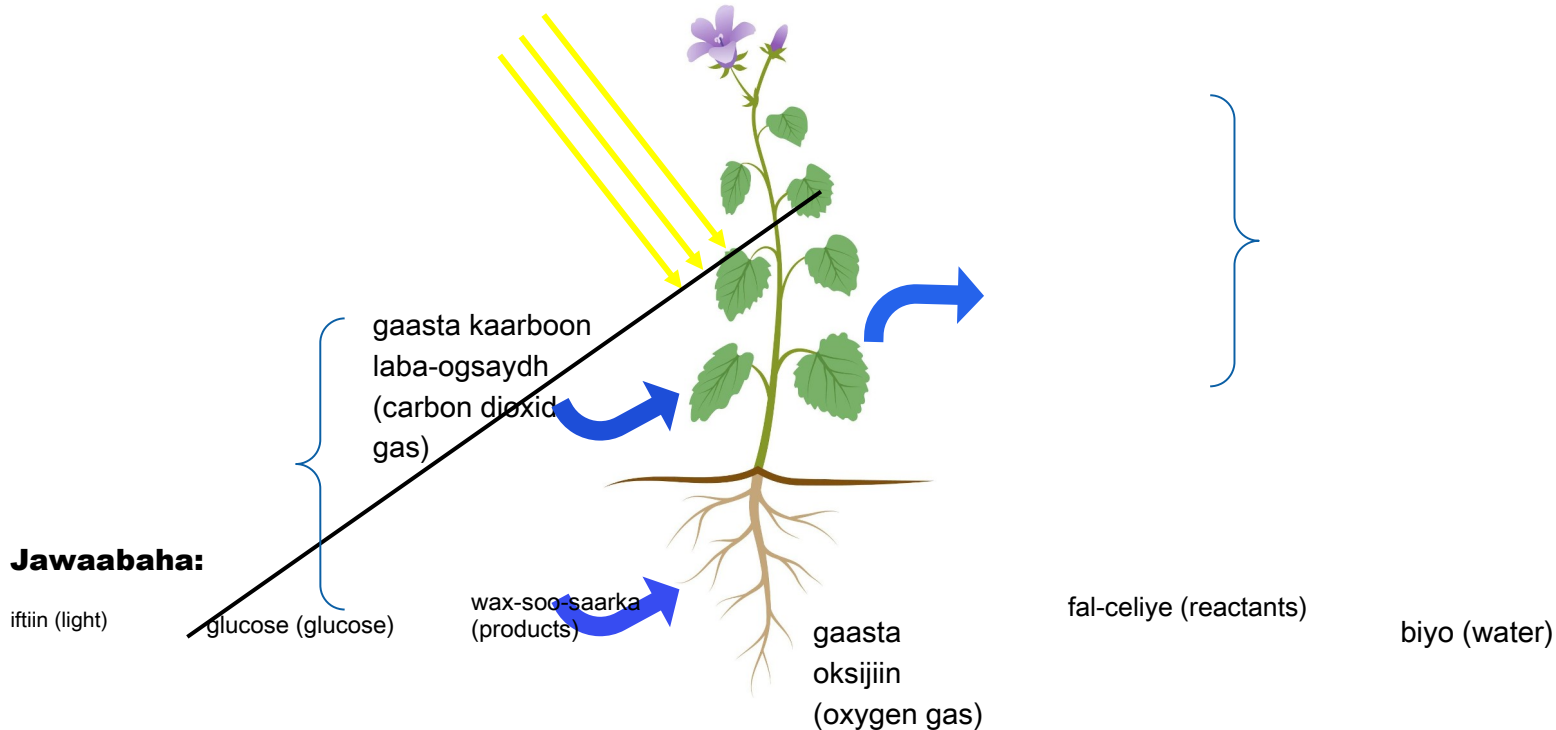
- hal ama in ka badan oo walxo (substances) ayaa la kala jebiyaa - kuwani waa fal-celiyeyasha (reactants)
- hal ama in ka badan oo walxo (substances) cusub ayaa la sameeyaa - kuwani waa wax-soo-saarka (products).

Fal-celiyeyasha (reactants) iyo wax-soo-saarka (products) sawir-iftiinka (photosynthesis)



Sharaxaad

Sida hawlgalka kiimikada oo kale, photosynthesis wuxuu leeyahay fal-celiye (reactants) iyo wax-soo-saarka (products).



Photosynthesis ma aha hal falgal (reaction) oo keliya.

Waa taxane falgal (reaction) oo ka dhaca gudaha unugyada dhirta.

Laakiin waa faa'iido in la xasuusto soo koobida ereyada ee fal-celiyeyasha (reactants) iyo wax-soo-saarka (products):

biyo (water) + carbon dioxide glucose + oxygen



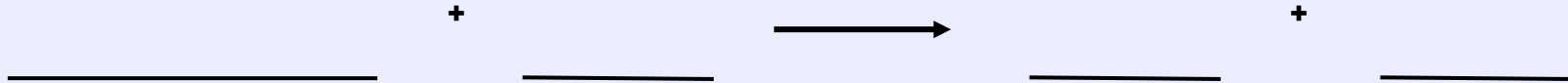
Jawaabaha:

fal-celiye (reactants)

wax-soo-saar (products)



Dhammeystir soo koobida ereyada ee photosynthesis.



Jawaabaha:

carbon dioxide

biyo (water)

glucose

oxygen

biyo (water) + carbon dioxide glucose + oxygen



Mid ka mid ah fal-celiyeyasha (reactants) ee photosynthesis waa biyo (water).

Dhirta waxay u qaataan biyo (water) photosynthesis iyagoo sii mara xididdada.

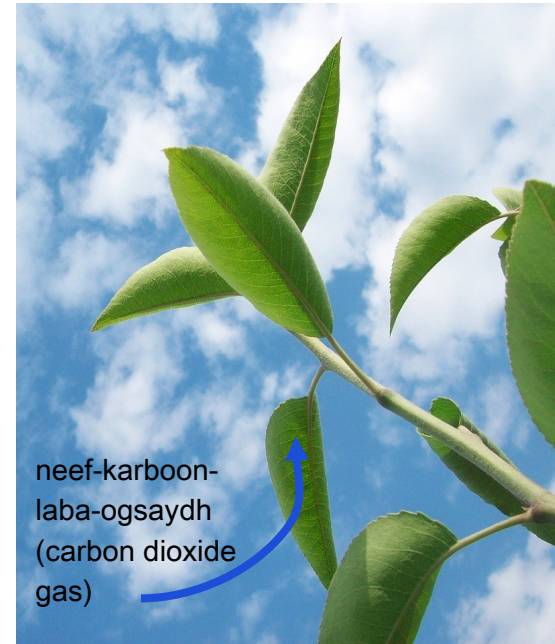
Biyaha (water) waxaa loo qaadaa caleemaha si loogu isticmaalo photosynthesis.



biyo (water) + neef-karboon-laba-ogsaydh (carbon dioxide) glucose + oksijiin (oxygen)

Mid ka mid ah falgal-celiyeyasha (reactants) ee sawir-qaadista (photosynthesis) waa neef-karboon-laba-ogsaydh (carbon dioxide).

Dhirtu waxay ka soo qaaddaa neef-karboon-laba-ogsaydh (carbon dioxide gas) hawada, caleemaheeda dhexdooda, si loo sameeyo sawir-qaadista (photosynthesis).



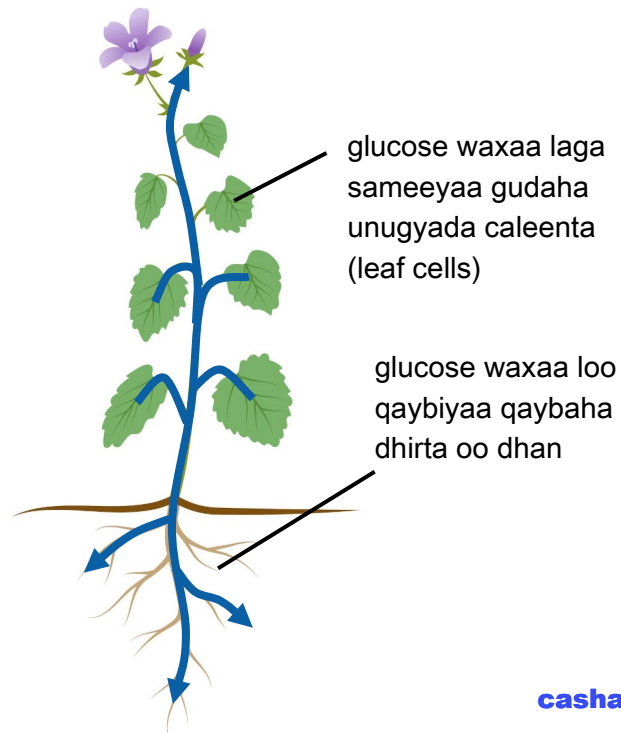
biyo (water) + neef-karboon-laba-ogsaydh (carbon dioxide) glucose + oksijiin (oxygen)

Mid ka mid ah wax-soo-saarka (products) ee sawir-qaadista (photosynthesis) waa glucose.

Glucose waa nooc sonkor ah, oo ah karbohaydrayt (carbohydrate). Waa cuntada dhirta.

Glucose-ga waxaa la geeyaa qaybaha dhirta oo dhan halkaas oo loo isticmaalo:

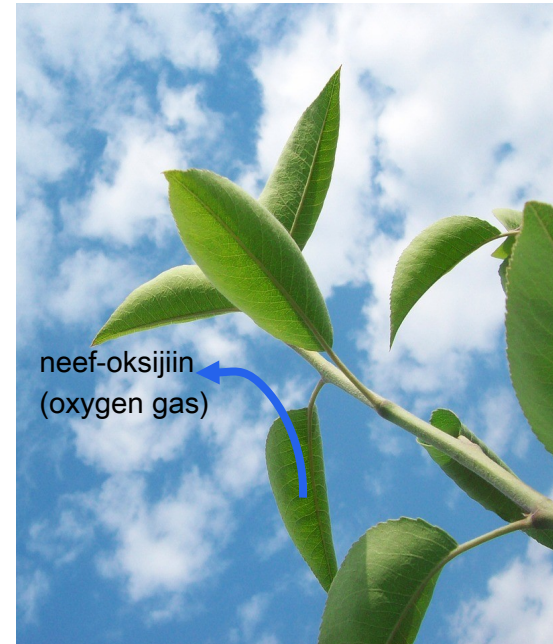
- il tamar (energy) ahaan
- il qalab (materials) ahaan si loo sameeyo unugyo (cells) cusub iyo nud (tissues) cusub oo koritaan (growth) ah.



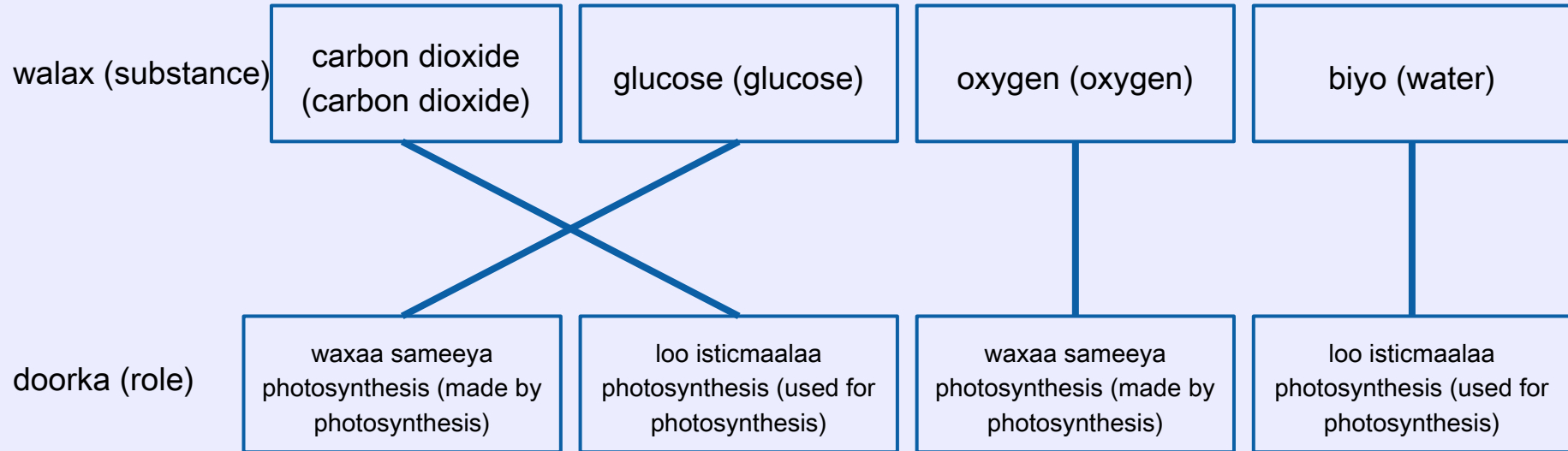
biyo (water) + neef-karboon-laba-ogsaydh (carbon dioxide) ~~glucose~~ → oksijiin (oxygen)

Mid ka mid ah wax-soo-saarka (products) ee sawir-qaadista (photosynthesis) waa oksijiin (oxygen).

Dhirtu waxay sii daysaa oksijiinkan (oxygen) hawada caleemaheeda.

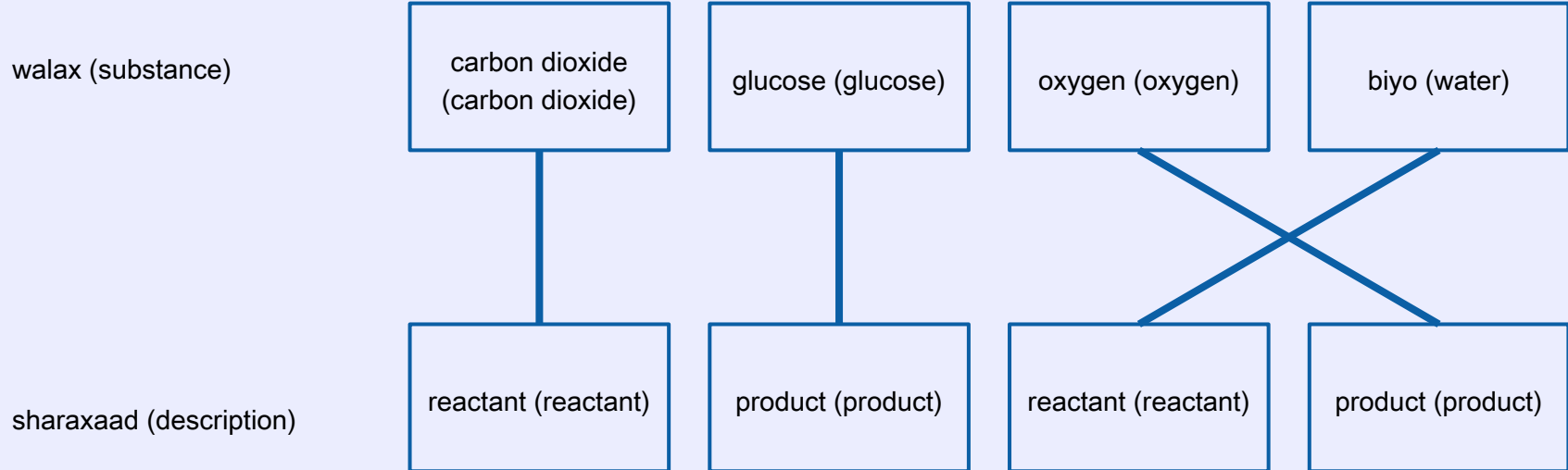


U dhigma walax kasta (substance) doorkeeda (role) sawir-qaadista (photosynthesis).



Reactants iyo products ee photosynthesis

Ku xidh walax kasta sharaxaadda saxda ah.



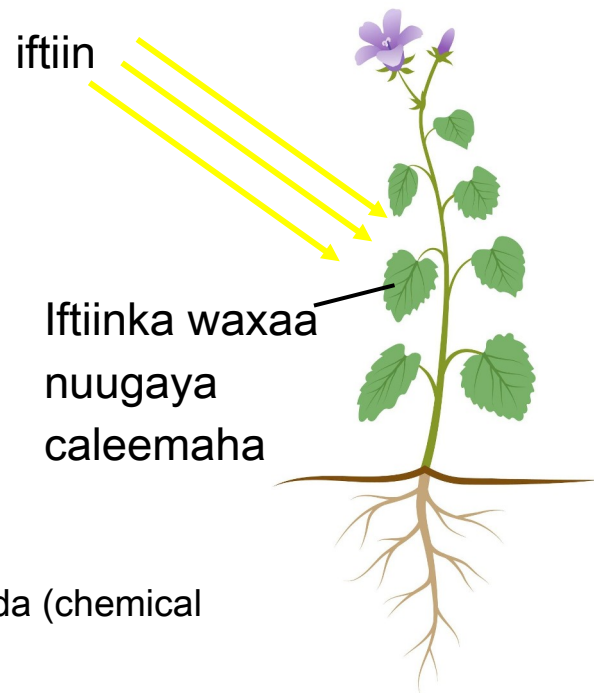
biyo (water) + carbon dioxide glucose + oxygen $\longrightarrow$

Photosynthesis-ku wuxuu u baahan yahay iftiin.

Si kastaba ha ahaatee:

- Iftiinku ma aha walax (substance).
- Iftiinku ma aha fal-celin kiimiko (chemical reactant) ee photosynthesis-ka.
- Iftiinku iskuma beddelo wax soo saar (product) inta lagu jiro photosynthesis-ka.

Iftiinku wuxuu bixiyaa tamarta (energy) loo baahan yahay fal-gallada (chemical reactions) kiimikada ee photosynthesis-ka si ay u dhacaan.



biyo (water) + carbon dioxide glucose + oxygen



Glucose waa nooc sonkor (sugar) ah.



Sonkor shay (bag) ah oo laga iibsaday dukaanku wuxuu leeyahay cuf (mass) dhan 1 kiilogaraam (1 kg).



Imisa sonkor shay (kiilogaraam) ayaad u malaynaysaa in geed weyn uu samayn karo hal maalin oo qorrax leh?

biyo (water) + carbon dioxide glucose + oxygen $\longrightarrow$

Geed weyn wuxuu soo saari karaa ilaa 90 kg oo glucose ah maalin karta photosynthesis-ka.

Inta badan cufka (mass) glucose-gaas wuxuu ka kooban yahay atamka (atoms) kaarboon (carbon).

Dhammaan atamkaas kaarboon (carbon atoms) waxay ka yimaadeen gaasta carbon dioxide ee hawada!



Dhammeystir weedhaha ku saabsan photosynthesis-ka.

Fal-celiyeyasha (reactants) ee photosynthesis-ku waa _____ oo ka yimid hawada iyo _____ oo ka yimid ciidda.

Photosynthesis-ku wuxuu sameeyaa nooc kaarbohaydayt (carbohydrate) ah oo la yiraahdo _____ oo uu geedku u isticmaalo inuu ka weynaado (grow bigger).

Inta badan cufka (mass) ee karbohaydaytka (carbohydrate) wuxuu ka kooban yahay atamka _____, kuwaas oo laga soo qaaday hawada.

Jawaabaha:

carbon dioxide

biyo (water)

glucose

carbon

Cabdi wuxuu iibsaday geed yar oo dheri ku jira.

Wuxuu geedka ku hayaa meel qorrax leh.

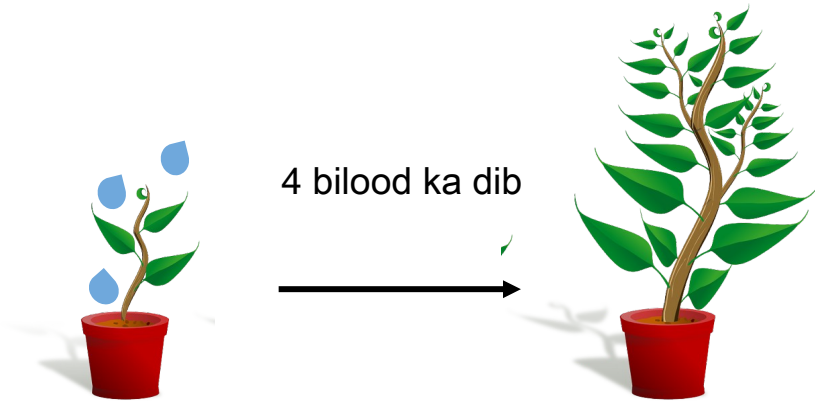
Wuxuu geedka waraabiyaa marka ciiddu engegto.

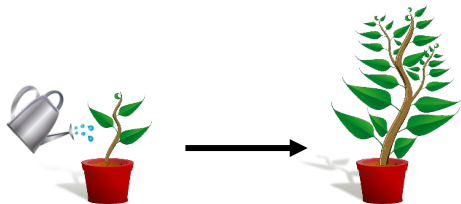
4 bilood ka dib geedku aad buu u weyn yahay.

Waxyaabaha la sameeyo:

Qor waxa geedku soo qaatay si uu u koro.

4 bilood ka dib cufka (mass) geedku wuu kordhay, laakiin cufka ciidda wuxuu ahaa sidii bilowgii. Sharax sababta.





Qor waxa geedku soo qaatay si uu u koro.

Geedku wuxuu soo qaatay biyo (water) (ciidda) iyo carbon dioxide (hawada) si uu u sameeyo photosynthesis. Geedku wuxuu kaloo soo qaatay iftiin si uu u helo tamar (energy) photosynthesis.

2. 4 bilood ka dib cufka (mass) geedku wuu kordhay, laakiin cufka ciidda wuxuu ahaa sidii bilowgii. Sharax sababta.

Cufka (mass) geedku wuu kordhay sababtoo ah wuxuu isticmaalay karbohaydrayt (carbohydrate) ka yimid photosynthesis si uu u sameeyo unugyo (cells) iyo unugyo cusub. Inta badan cufka karbohaydraytkan wuxuu ka yimid carbon dioxide hawada. Geedku wuxuu soo qaatay biyo (water) ciidda, laakiin biyahan waa la beddelay marka cufka ciidda ma dhiman.

- Soosaarayaashu (Producers) waxay sameeyaan cuntadooda iyagoo isticmaalaya hab loo yaqaan photosynthesis.
- Sawir-qaadasho (Photosynthesis) waxay dhacdaa oo kaliya marka iftiin (light) jiro.
- Sawir-qaadasho (Photosynthesis) waa taxane falgal (reactions) kiimiko ah oo ka dhaca unugyada dhirta (plant cells) gudahood.
- Waxyaabaha falgala (reactants) ee sawir-qaadashada (photosynthesis) waa biyo (water) iyo carbon dioxide.
- Waxyaabaha soo baxa (products) waa oksijiin (oxygen) iyo gulukoos (glucose) (karbohaydrayt (carbohydrate)).
- Soo koobid erey ah oo ku saabsan waxyaabaha falgala (reactants) iyo waxyaabaha soo baxa (products) ee sawir-qaadashada (photosynthesis) waa:

biyo (water) + carbon dioxide gulukoos (glucose) + oksijiin (oxygen)

