UDAAN

2025

LIFE PROCESSES

Biology | Lecture - 02

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Ma'am

Topics to be covered

1. Photosynthesis
2. Structure and function of stomata

QUESTION

Which of the following is an example of a heterotroph ?

dependent on others

A Cyanobacteria ✗

B Green plants ✗

→ Photosynthesis ↓ autotrophs

C Fungi → Chlorophyl absent

D Both A and C

Question of the Day

What type of nutrition is shown by insectivorous plants ?

→ green → Chlorophyl → Photosynthesis → Autotrophic Nutrition

→ Feeds on insects → Heterotrophic Nutrition

Both

Autotrophic Nutrition in plants

Photosynthesis

① light energy

② CO_2

③ $+H_2O$

④ Chlorophyll

Food → Carbohydrate

Glucose

$C_6H_{12}O_6$

Oxygen

Photosynthesis

- Does it occur in all parts of plants ?

No

green parts of the plant

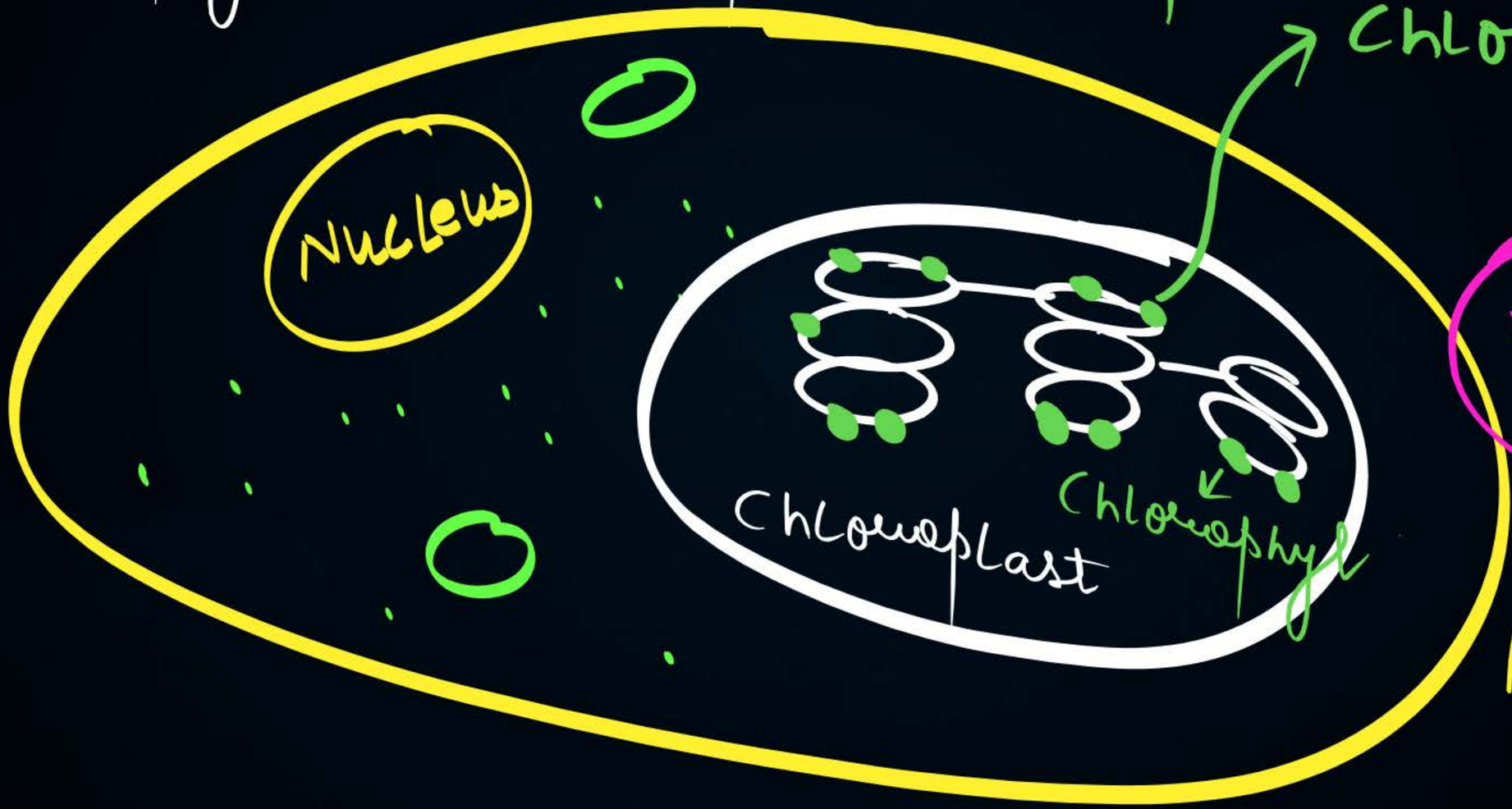
Chlorophyll Containing parts

- Where does it occurs ?

Leaves → "Mesophyll Cells"

Chlorophyl & Chloroplast

green pigments present inside Chloroplast



#Ch

Plant Cell

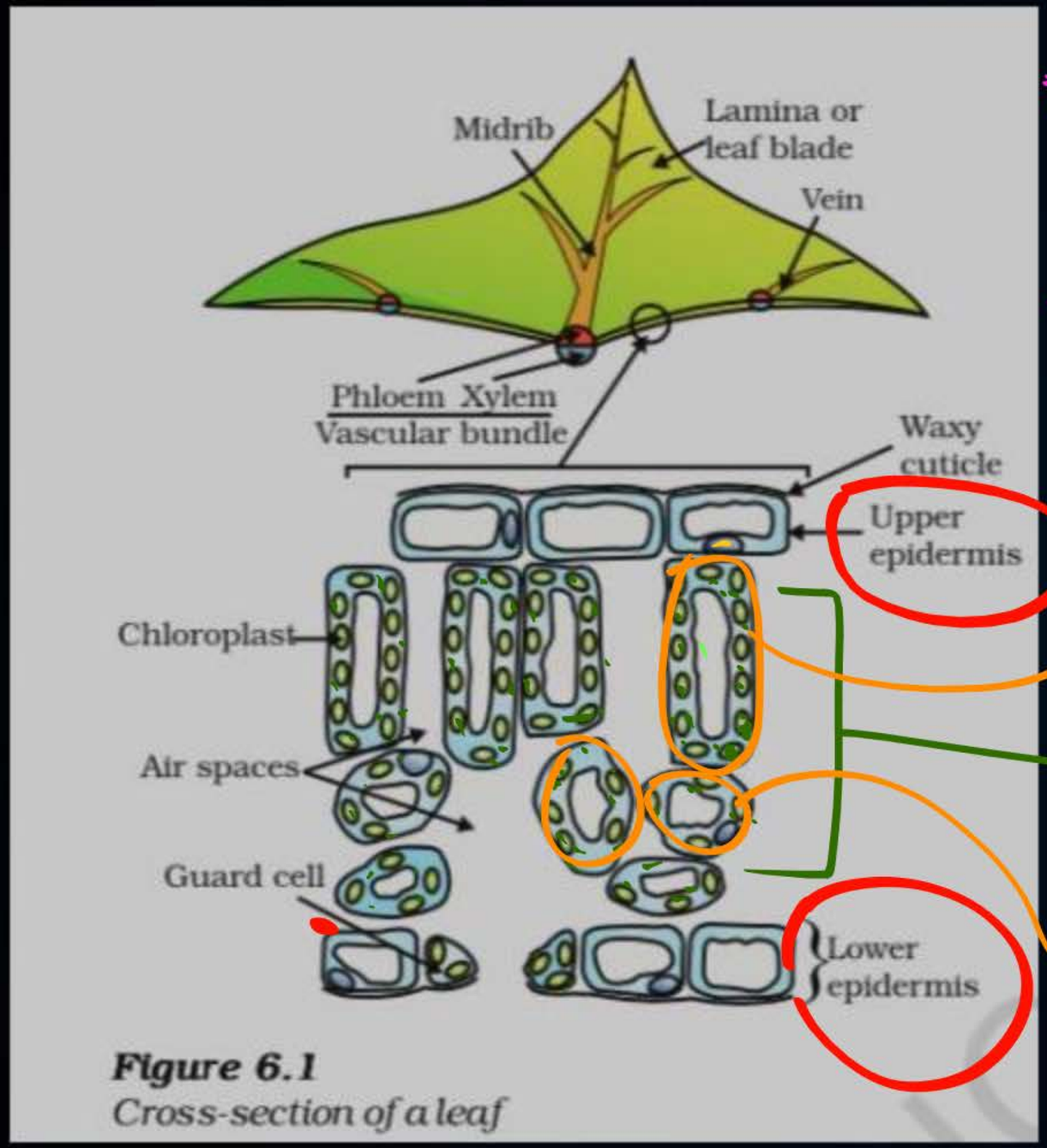


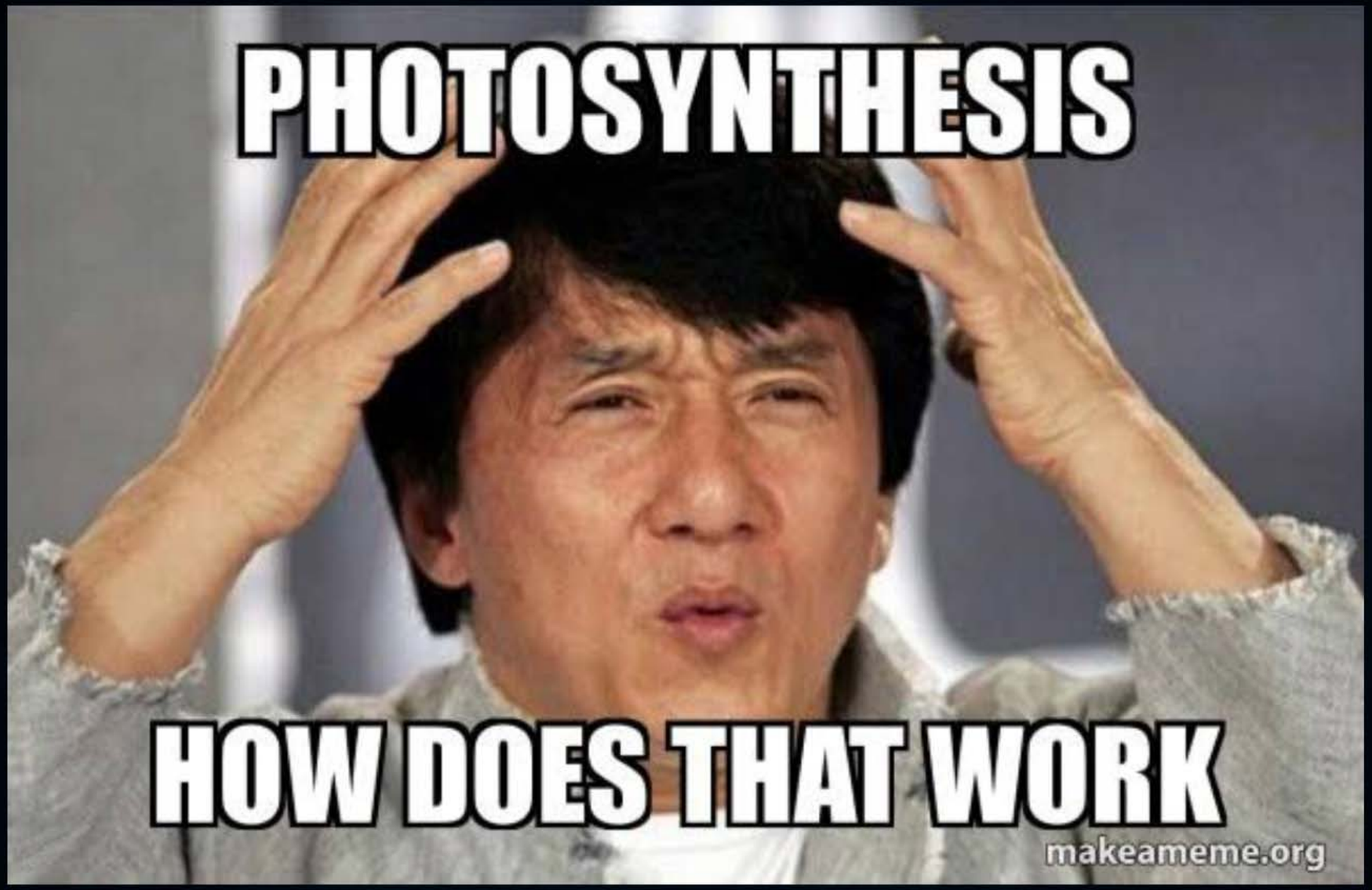
Figure 6.1
Cross-section of a leaf

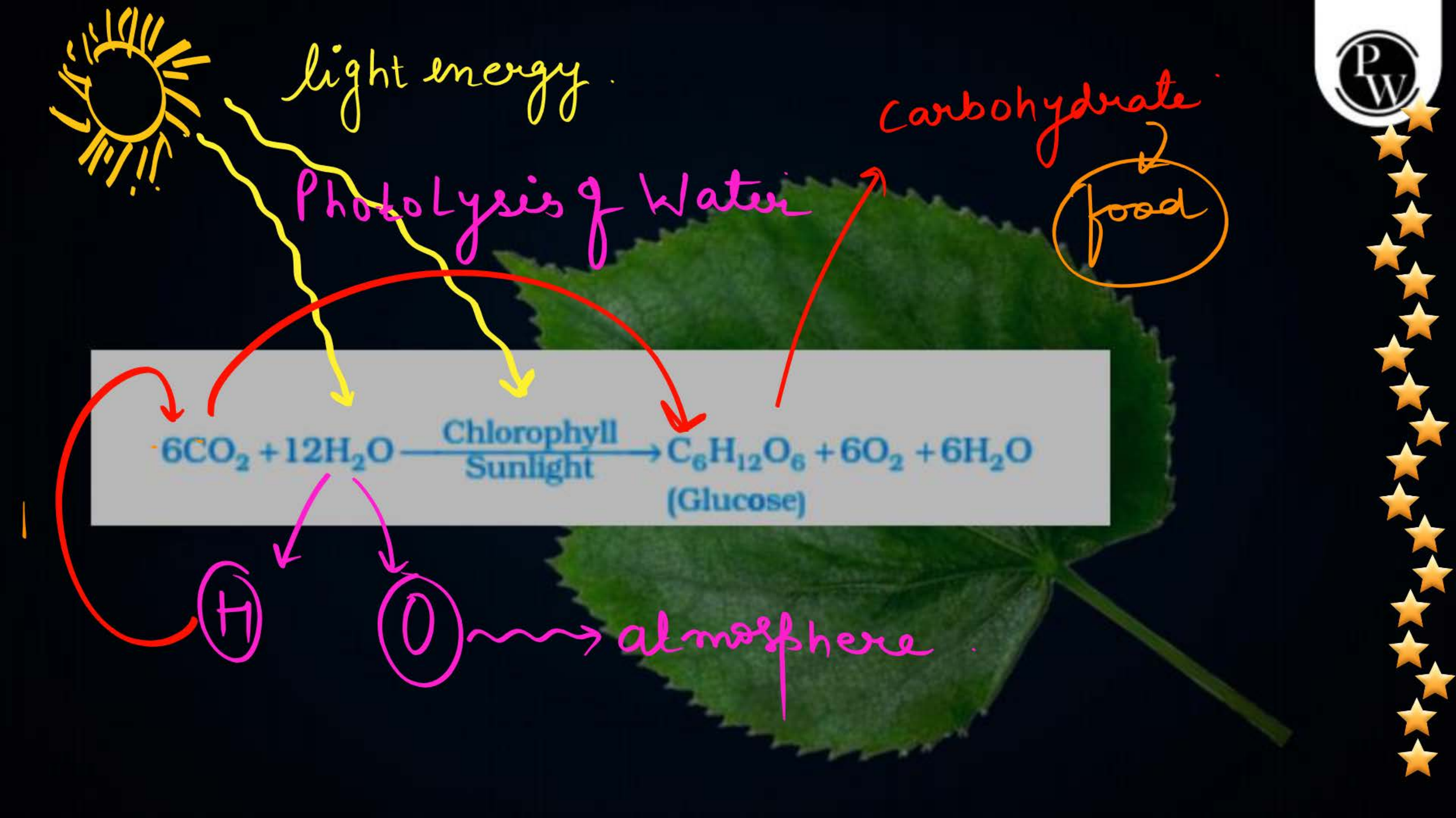
* Phloem: Transport of food
* Xylem: Transport of Water

Palisade parenchyma → #ch

Mesophyll Cells
↓
Site of photosynthesis

Spongy parenchyma


PHOTOSYNTHESIS
HOW DOES THAT WORK
makeameme.org


light energy
Photolysis of Water
Carbohydrate
food
$6CO_2 + 12H_2O \xrightarrow[\text{Sunlight}]{\text{Chlorophyll}} C_6H_{12}O_6 + 6O_2 + 6H_2O$
(Glucose)
H
O
atmosphere

Starch

Plants store glucose in form of "Starch"

Human beings Store glucose in form of "glycogen"

Photo Lysis of Water

light to break

(i) Absorption of light energy by chlorophyll.

(ATP)

(ii) Conversion of light energy to chemical energy and splitting of water molecules into hydrogen and oxygen.

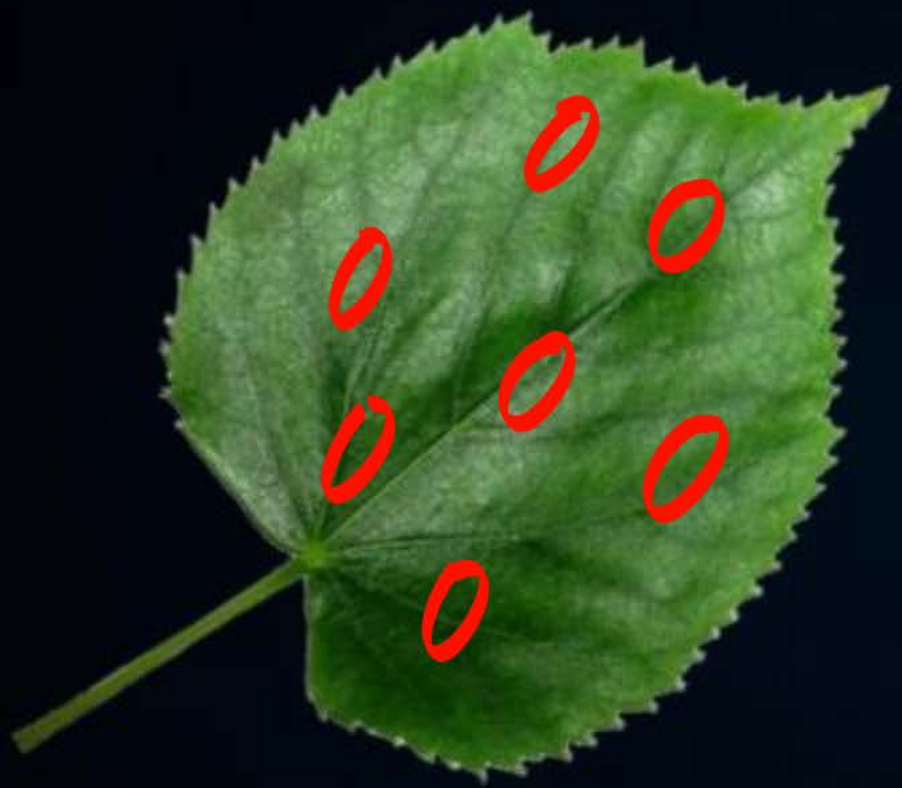
(Photolysis of Water)

(H)

Glucose → food

(iii) Reduction of carbon dioxide to carbohydrates.

→ addition of Hydrogen.



Light energy	Sun
Water	Soil → Roots
Carbondioxide	Atmosphere

Nitrogen	In form in nitrates and nitrites from soil

Glucose	Stored as food in form of starch
Oxygen	Released into atmosphere as a by product

QUESTION

#11.9

The chlorophyl in photosynthesis is used for:

A Absorption of light

B Absorption of water

C Releases Carbon dioxide

D Bilkul meri tara hai kuch bhi nahi karta

QUESTION

Site of photosynthesis is

leaf → Mesophyll cell

food

A Golgi body

B Mitochondria

C Chloroplast → Kitchen of the cell

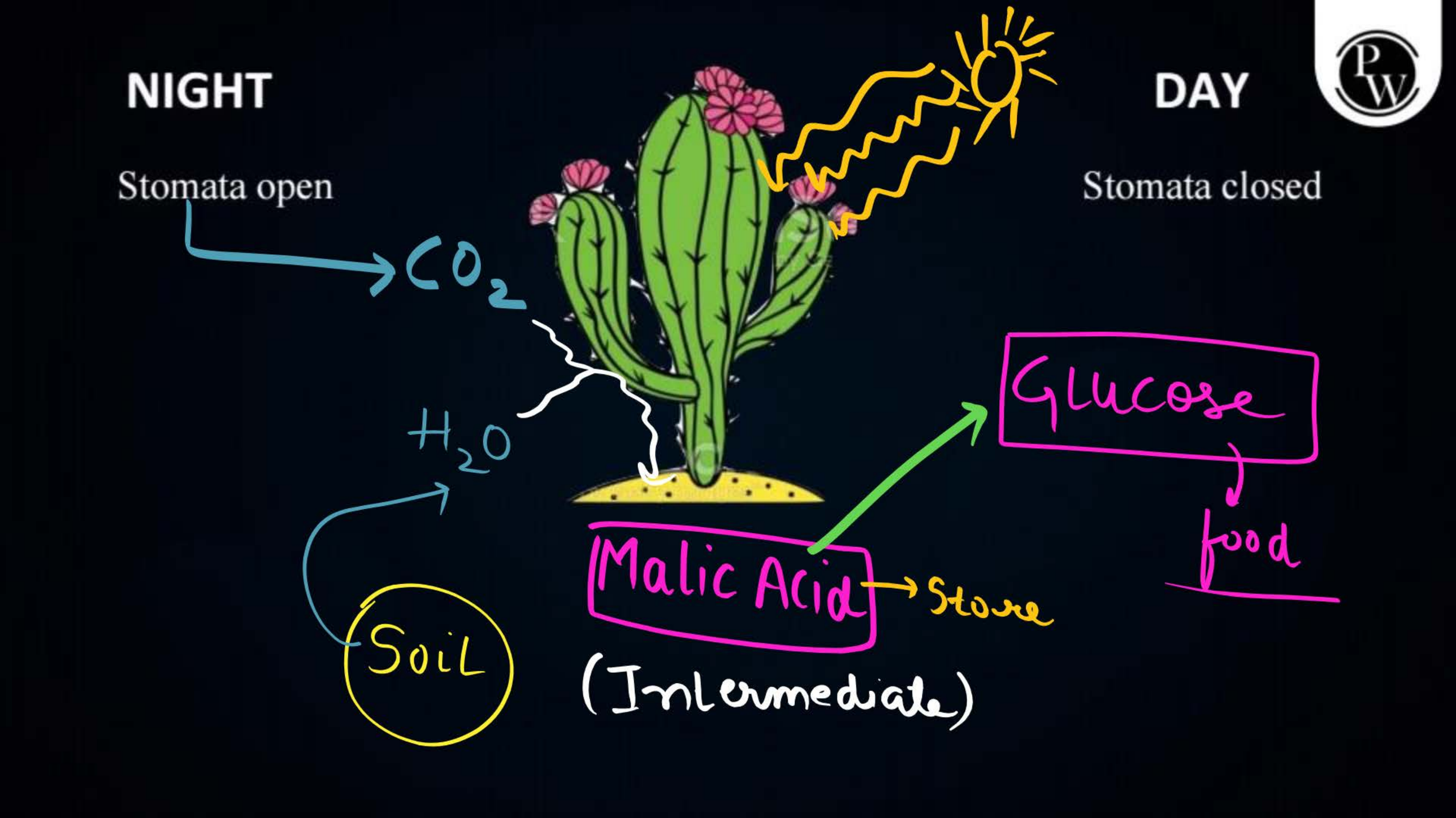
D Cytoplasm

Photosynthesis in Desert Plants

Xerophytes

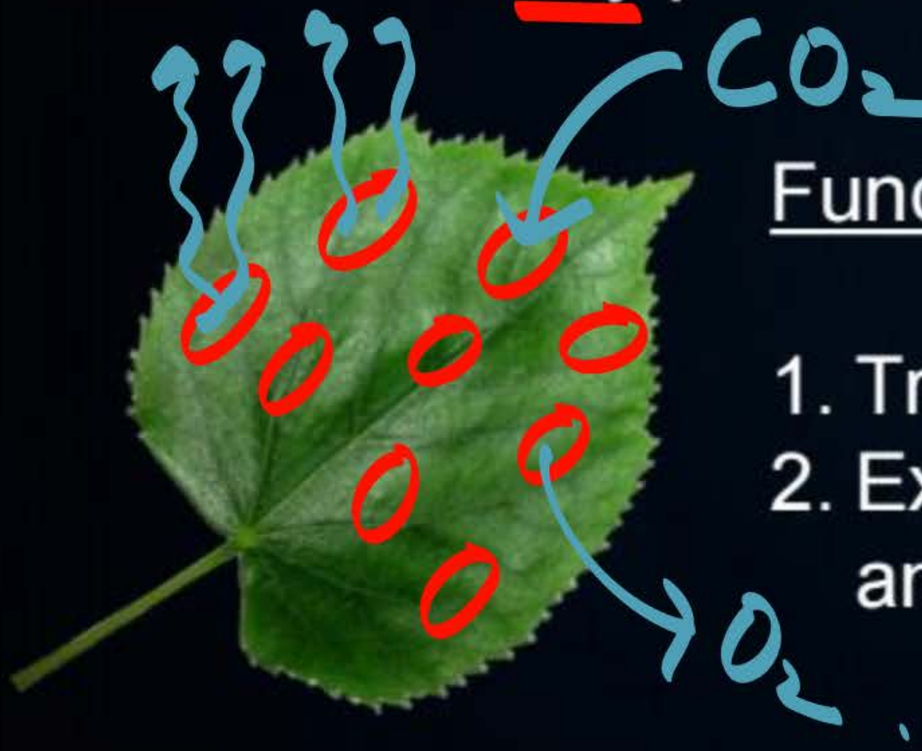
Closed Stomatal pore during day time

↳ to prevent loss of Water


NIGHT
DAY
Stomata open
Stomata closed
CO_2
H_2O
Soil
Malic Acid
Store
(Intermediate)
Glucose
food

STOMATA

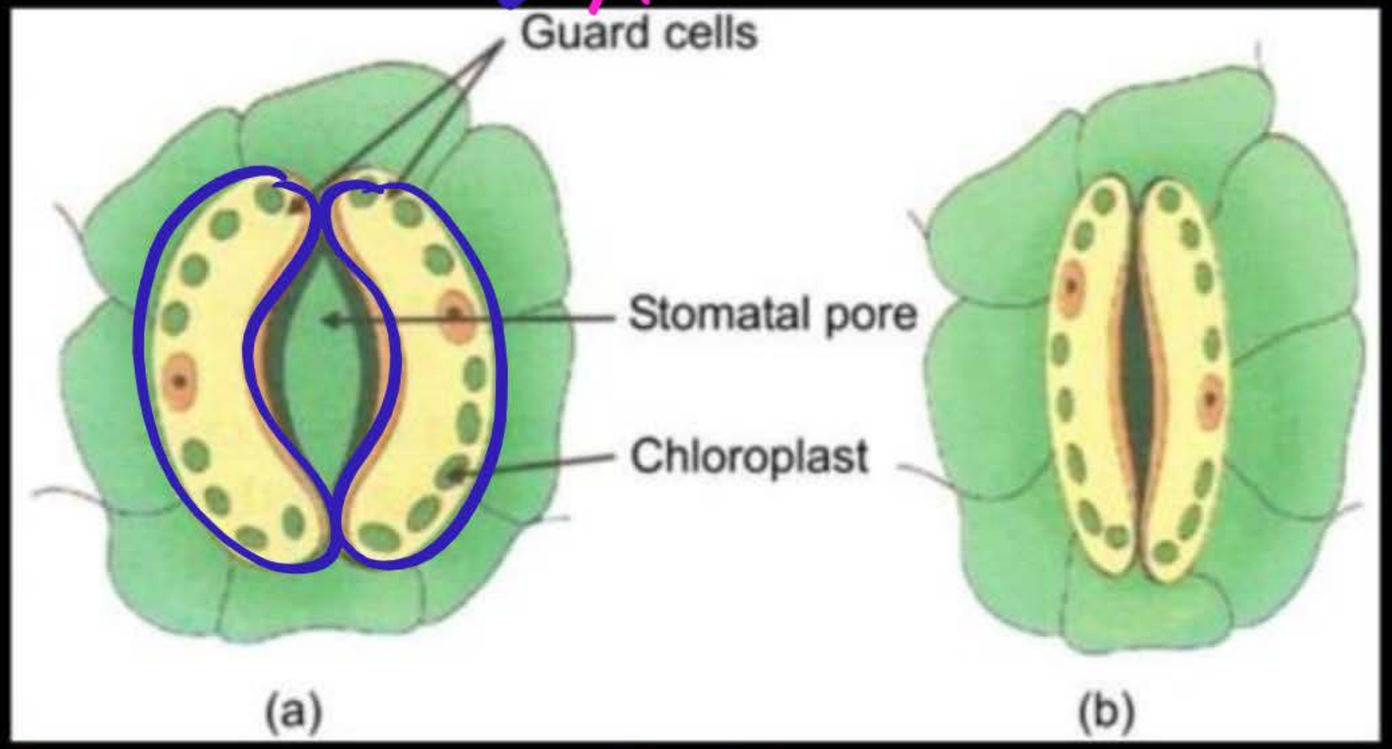
Stomata are tiny pore like structures present on surface of leaves



Functions of stomata

1. Transpiration
2. Exchanges of gases during photosynthesis and respiration.

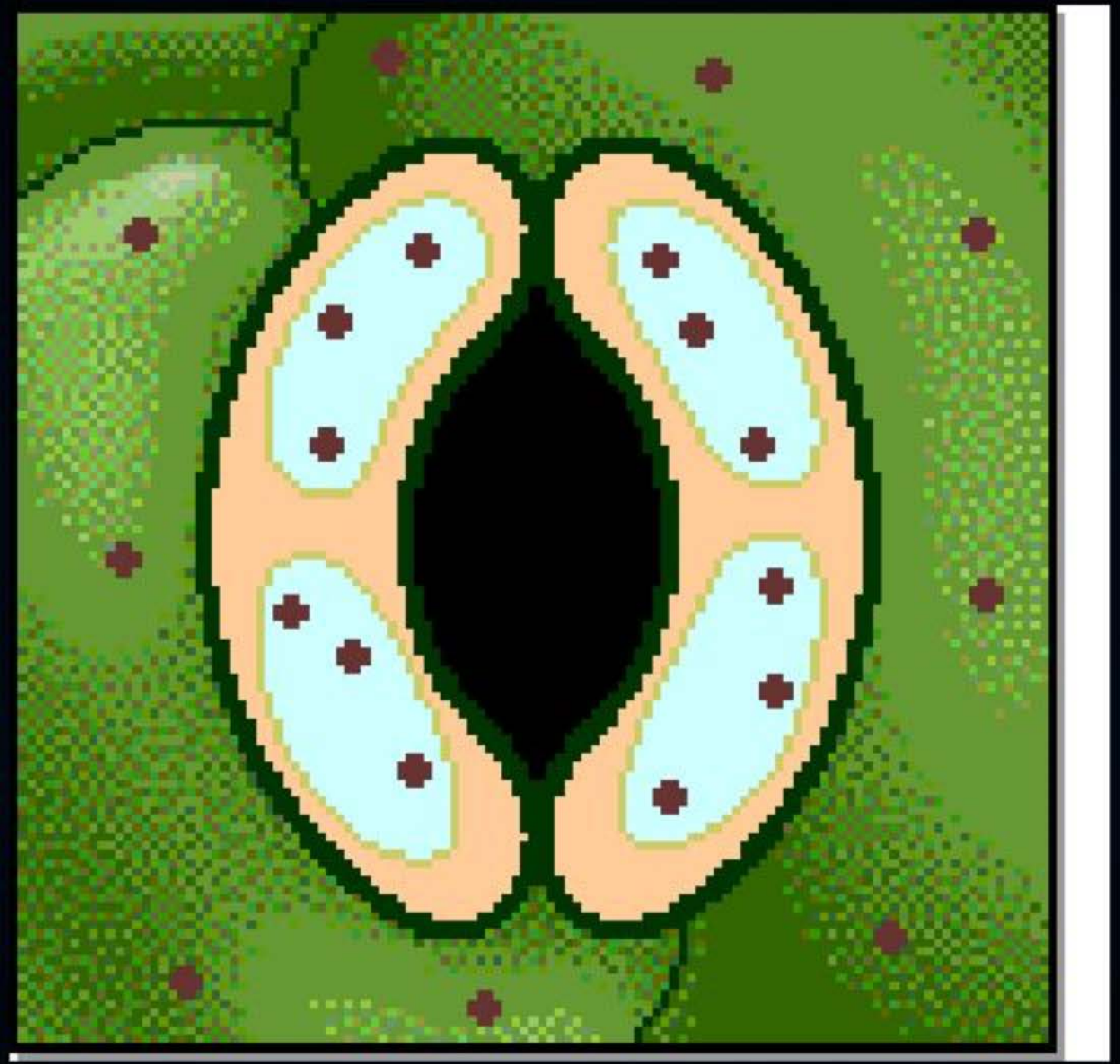
Kidney bean → Rajma jese Cells



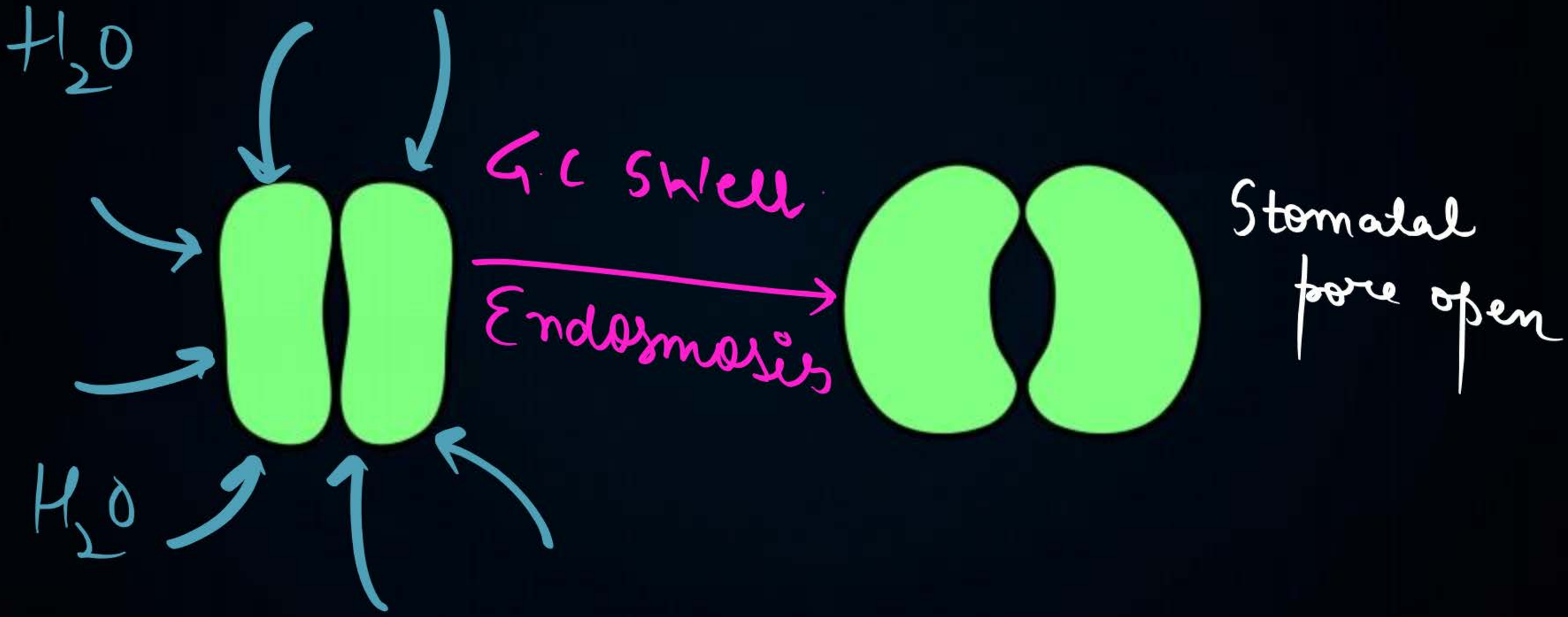
OPEN STOMATAL PORE

CLOSED STOMATAL PORE

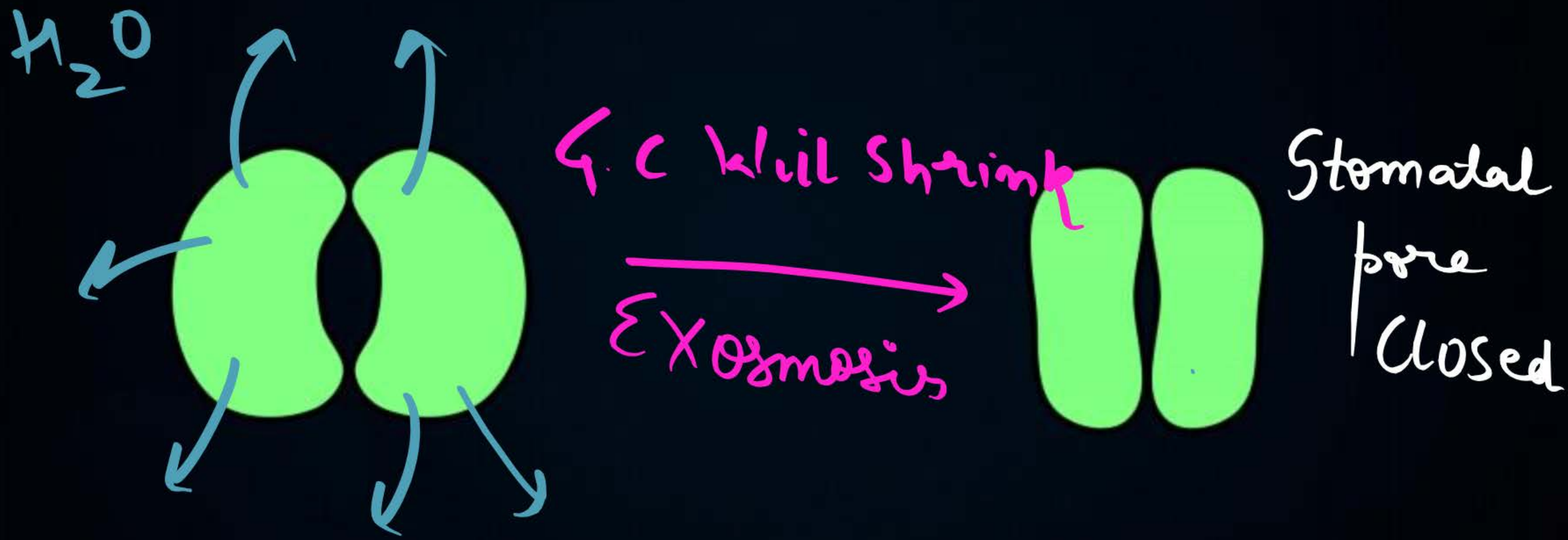
The opening and closing of the pore is controlled by kidney bean shaped cells called guard cells.



Opening of stomata



Closing of stomata



QUESTION

Glucose is stored in form _____ in human beings

A Amino acids

B Glycogen

C Starch

D None of the above

QUESTION

Oxygen gas, a by- product of photosynthesis is released by splitting of:

A Carbondioxide

B Glucose

C Water

D None of the above

Question of the Day

Can plants perform photosynthesis under artificial light such as "bulb/tubes"?

Joke/Meme of the Day

Humans: “eat food to survive”

Plants:

DHA + NCERT =.

THANK YOU