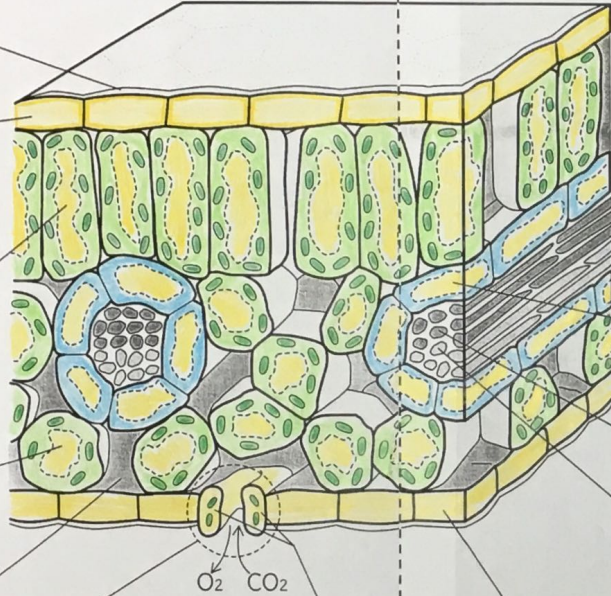
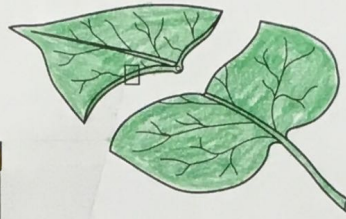


# Leaf Structure



## 1) Cuticle

- waxy coating produced by the epidermal cells of the leaf
- Prevents  $H_2O$  loss and protects the leaf

## 2) Upper Epidermis

- Outermost cells of the leaf
- produce the cuticle

## 3) Palisade Mesophyll

- Tightly packed layer of cells which are filled w/ chloroplasts for photosynthesis

## 4) Spongy Mesophyll

- Also contain chloroplast for photosynthesis but not nearly as many as the Palisade mesophyll

## 5) Air Spaces

- Areas of air located between the Spongy mesophyll cells
- These are necessary for gas exchange

## 7) Stoma

- singular for stomata
- opening on leaf that allows for gas exchange

## 8) Guard Cells

- opening and closing of the stoma is regulated by 2 guard cells

## 6) Lower Epidermis

- produces cuticle for the bottom of the leaf
- contains stomata

## 9) Vascular Bundle (Vein)

- circulatory pathways found in the leaf, stem and roots of plants (just like our veins)

## 10) Bundle Sheath Cells

- surround the xylem and phloem
- strengthen and protect veins

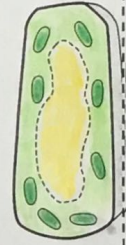
## 11) Xylem

- Transports water and minerals from roots to leaves

## 12) Phloem

- Transports glucose from the leaves to the rest of the plant

# Chloroplast



## 13) Outer Membrane

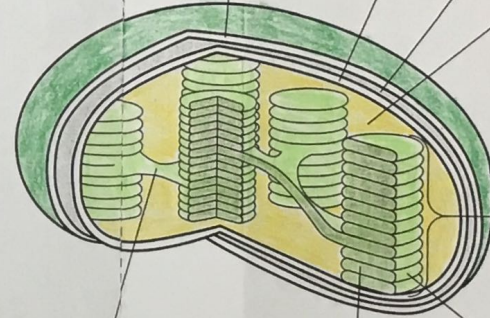
- outermost layer of the chloroplast

## 14) Inner Membrane

- smooth secondary membrane under the outer membrane

## 15) Intermembrane Space

- space between the inner and outer membrane



## 16) Stroma

- liquid surrounding thylakoids
- where the Light-independent reactions occur

## 17) Granum

- singular for grana
- a stack of thylakoids

## 20) Lamella

- singular for lamellae
- connect grana to each other

## 19) Thylakoid Lumen

- area inside the thylakoid

## 18) Thylakoid

- small disc shaped sac filled w/ chlorophyll
- Absorbs light and is location of the light-dependent reaction