# 2020-1-SK01-KA226-SCH-094350

**THE LEAF (phylom)**

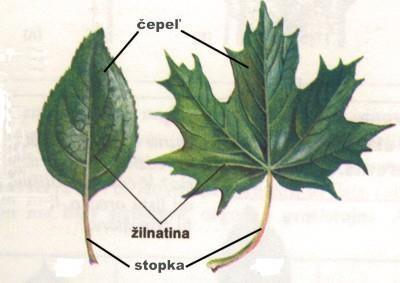
* the lateral organ of the shoot
* has a regular position and limited growth
* a seasonal organ (except for evergreens)
* *original functions:*
  + **assimilation –** photosynthesis in leaves
  + **breathing** – gas exchange
  + **transpiration –** water evaporation

During their development, flowering plants can form various **types of leaves**:

| * **cotyledon** – develops as a part of the seedling, provide nutrients to the plant during germination * **bract** – modified leaf, a base of a which a peduncle grows * **lamina –** primary place of photosynthesis * **petal** – modified leaves forming a flower |  |
| --- | --- |

# External structure of the leaf

The leaf consists of the **petiole** and the **lamina**.



https:/[/www](http://www.ta3k.sk/biokutik/index.php/rastlinypp/93-rastlinneorgany/96-list).[ta3k.sk/biokutik/index.php/rastlinypp/93-rastlinneorgany/96-list](http://www.ta3k.sk/biokutik/index.php/rastlinypp/93-rastlinneorgany/96-list)

# Shape of the lamina (simple leaf):

* acicular, orbicular, elliptic, ovate, spear-shaped, linear, spatulate, etc.

# Margins of the lamina:

* entire, serrated, dentate, crenate, sinuate, etc.

**Venation:**

* parallel, arcuate, palmate, pinnate, etc.

# Arrangement on the stem:

* alternate, opposite, basal, whorled, etc.

**Divisions of the blade: a) simple** – *undivided* – the lamina is whole

- *lobed* – the blade is divided but the lobes do not reach the main vein

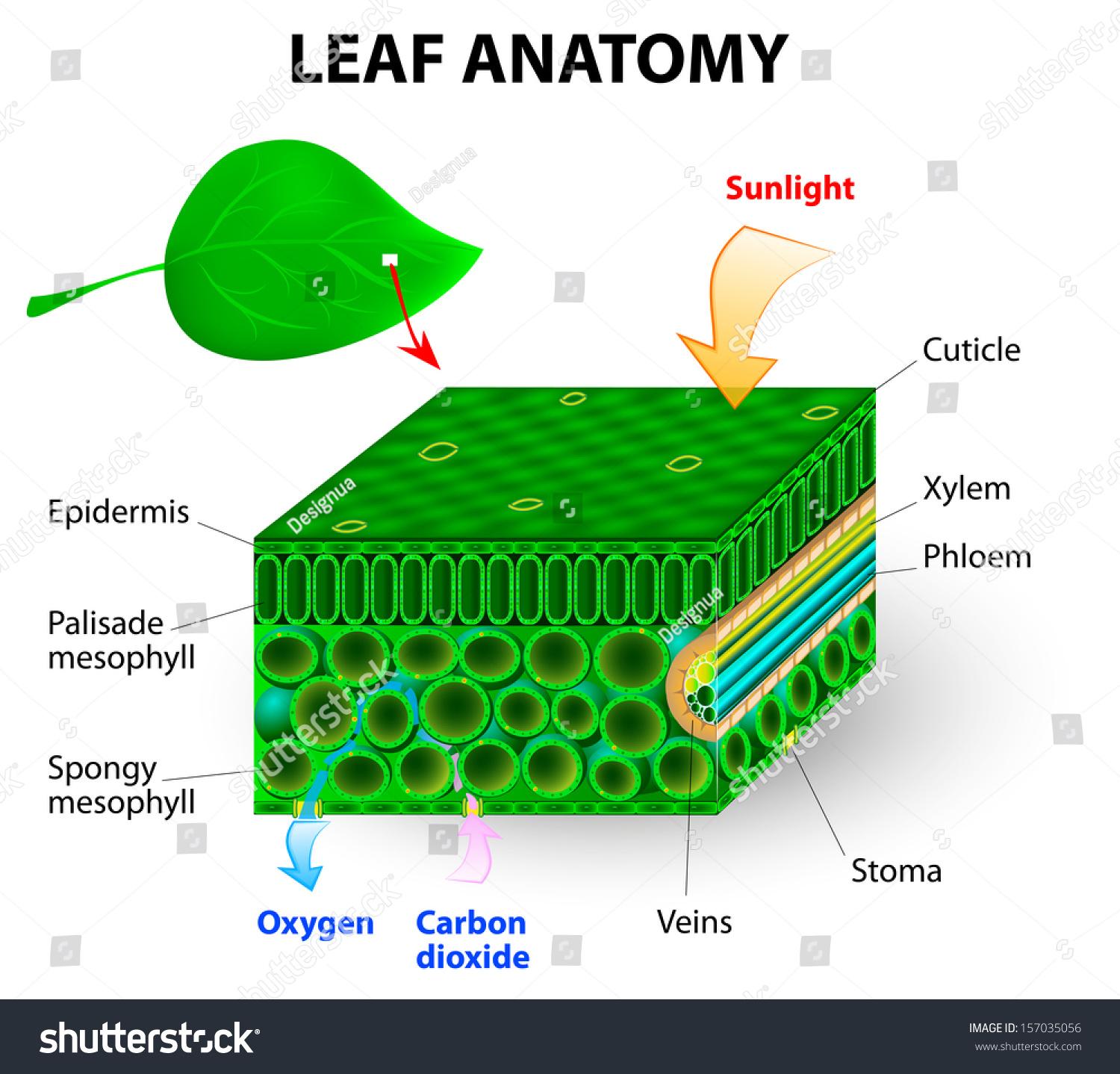
**b) compound** – the lamina is divided into leaflets. They can be **palmately compound** or **pinnately compound**. By the number of leaflets, they can be **odd pinnate** or **even pinnate**.

# Internal structure of the leaf

## bi-facial leaf

* the leaf of dicotyledons with a distinctive upper- and underside

1. **epidermis –** one layer with a cuticle
2. **mesophyll –** contains vascular bundles and two kinds of parenchyma:
   * + - **palisade mesophyll** – elongated cells packed with chloroplasts – photosynthesis
       - **spongy mesophyll** – cell of various shapes with a smaller number of chloroplasts – respiration 
       - **vascular bundles** - **collateral** or **concentric** – they transport nutrients
3. **bottom epidermis** – has **stomata** in it – transpiration and water management of the plant



## mono-facial leaf

* the leaf of monocotyledons
* the epidermis and the mesophyll are not distinguished – they both contain stomata

**Modifications of the leaf**

* *leaves of carnivorous plants* – glands in the leaves release a sticky secretion with

enzymes (common sundew)

* *spines* – a whole leaf modified (barberry)
* *tendrils* – coiling to another plant (pumpkin)