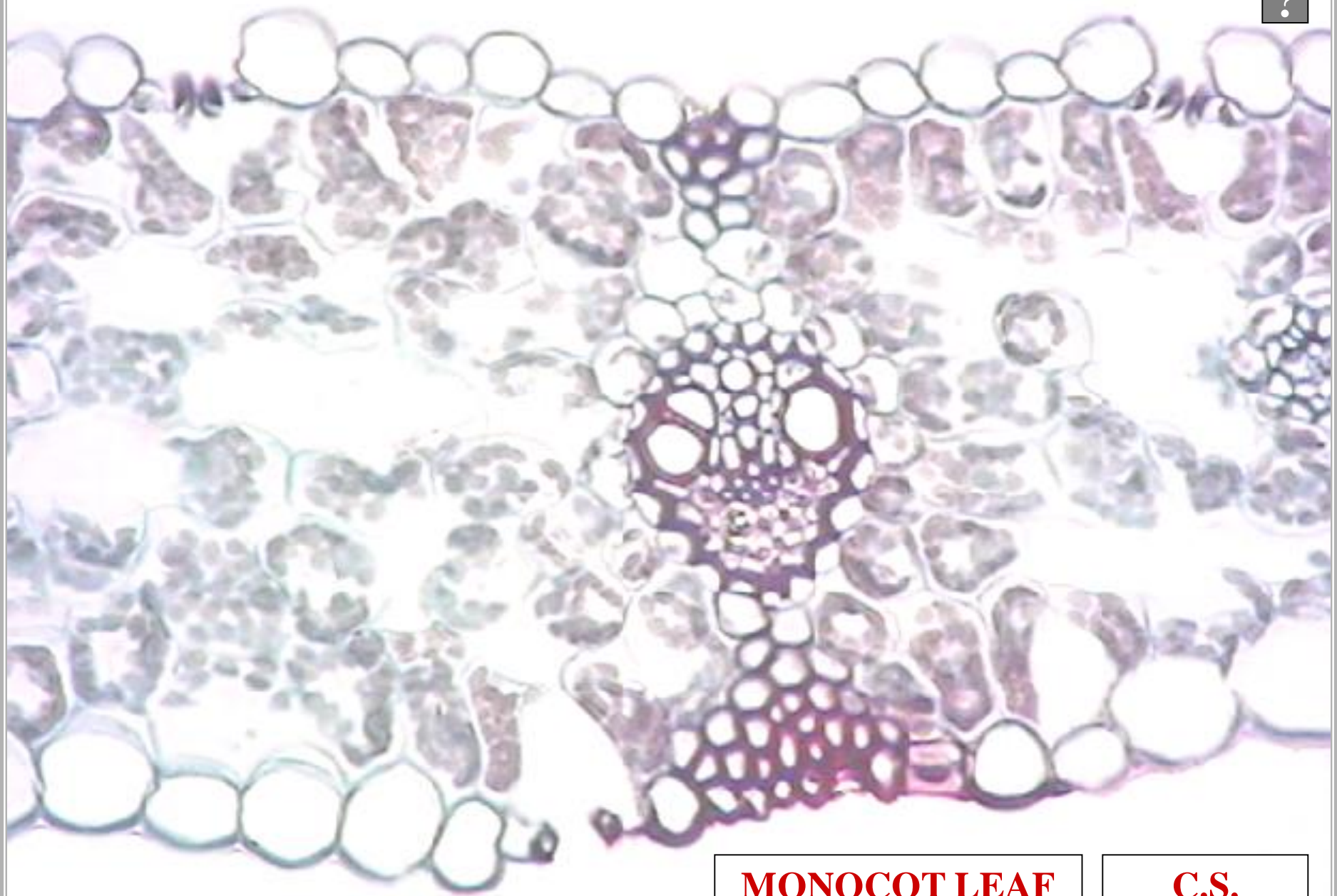




MONOCOT LEAF ANATOMY SUMMARY

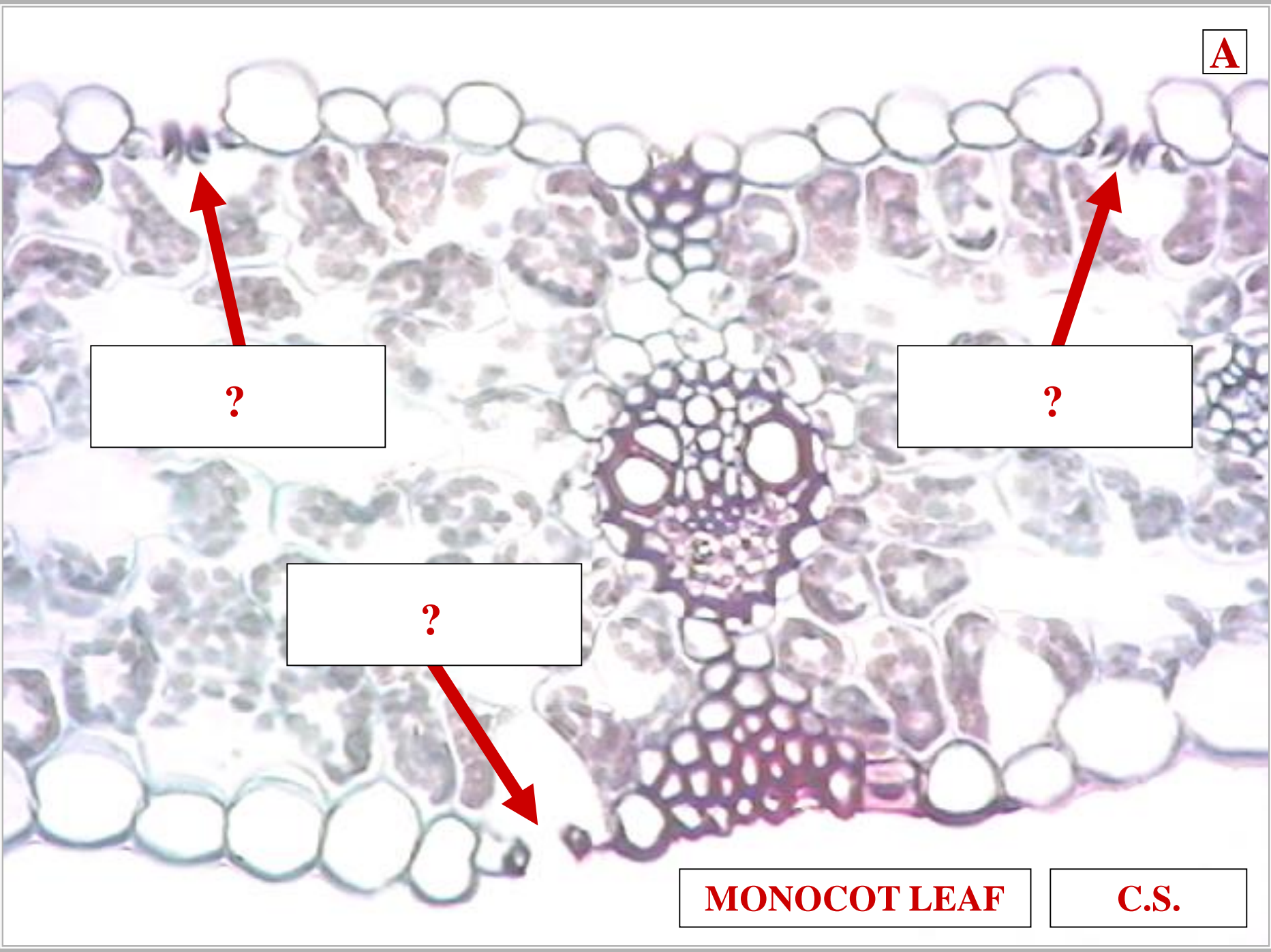
?



MONOCOT LEAF

C.S.

A



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?

?

MONOCOT LEAF

C.S.

?



**ADAXIAL
STOMATES**

This micrograph shows a cross-section of a monocot leaf. The upper surface (top) is covered by a single layer of epidermal cells. Two stomata are visible on this surface, each consisting of two kidney-shaped guard cells. The lower surface (bottom) also has a single layer of epidermal cells with two stomata. The internal structure includes a vascular bundle in the center, with xylem on the left and phloem on the right, surrounded by bundle sheath cells. The mesophyll consists of several layers of cells, including large, thin-walled bulliform cells. The entire leaf is surrounded by a thin cuticle.

**ADAXIAL
STOMATES**

**ABAXIAL
STOMATES**

MONOCOT LEAF

C.S.

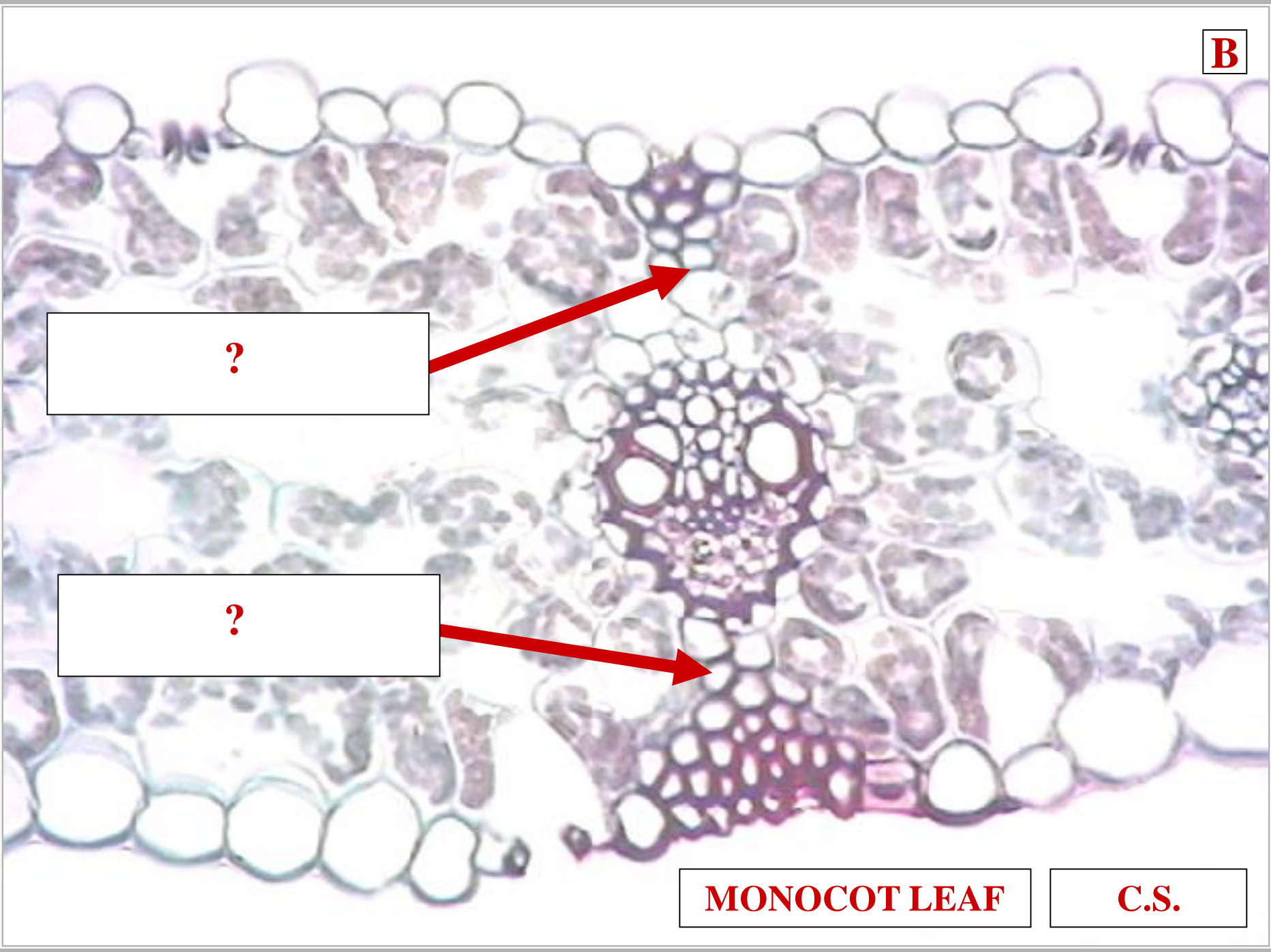
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?

?

MONOCOT LEAF

C.S.



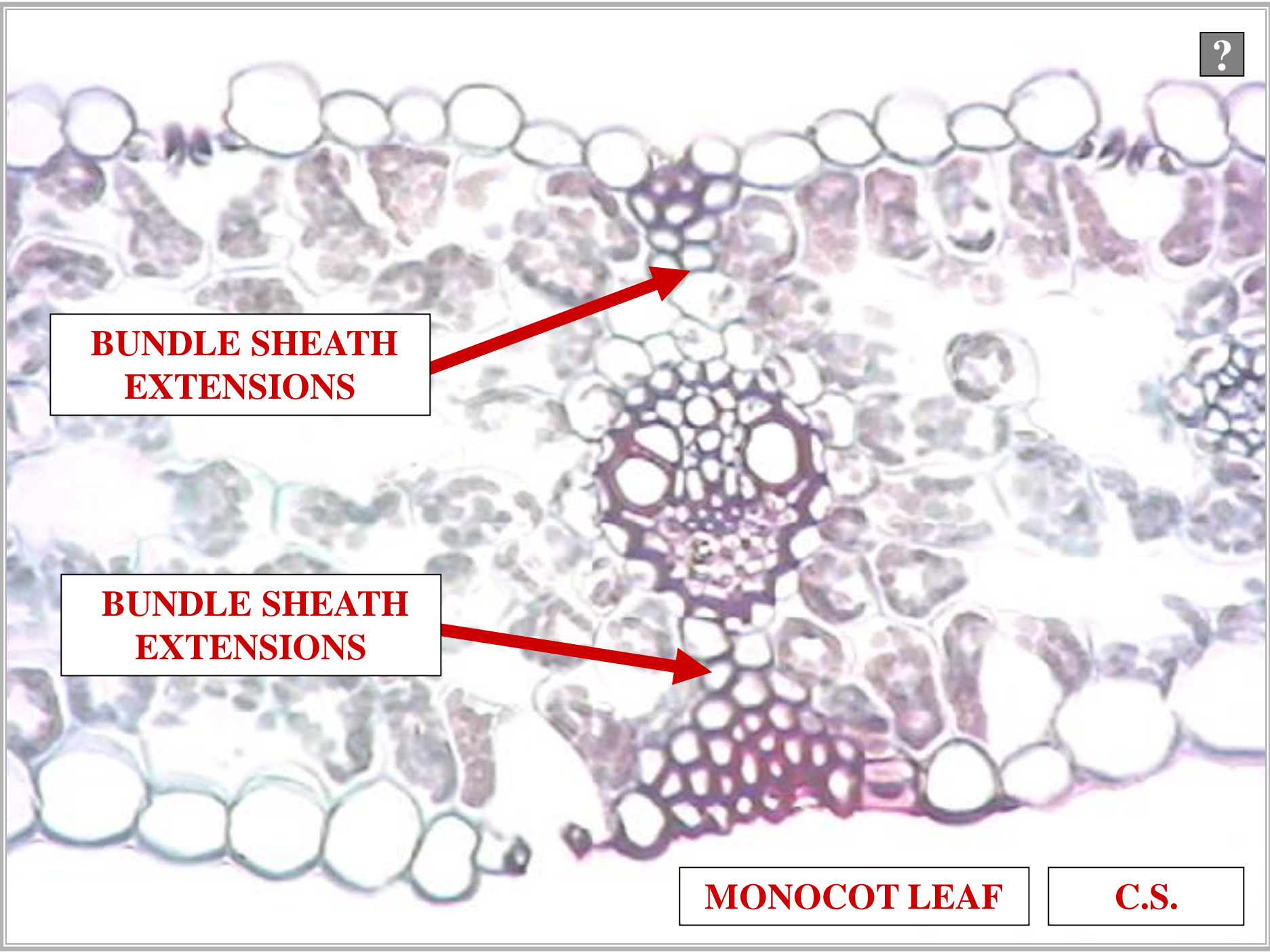
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**BUNDLE SHEATH
EXTENSIONS**

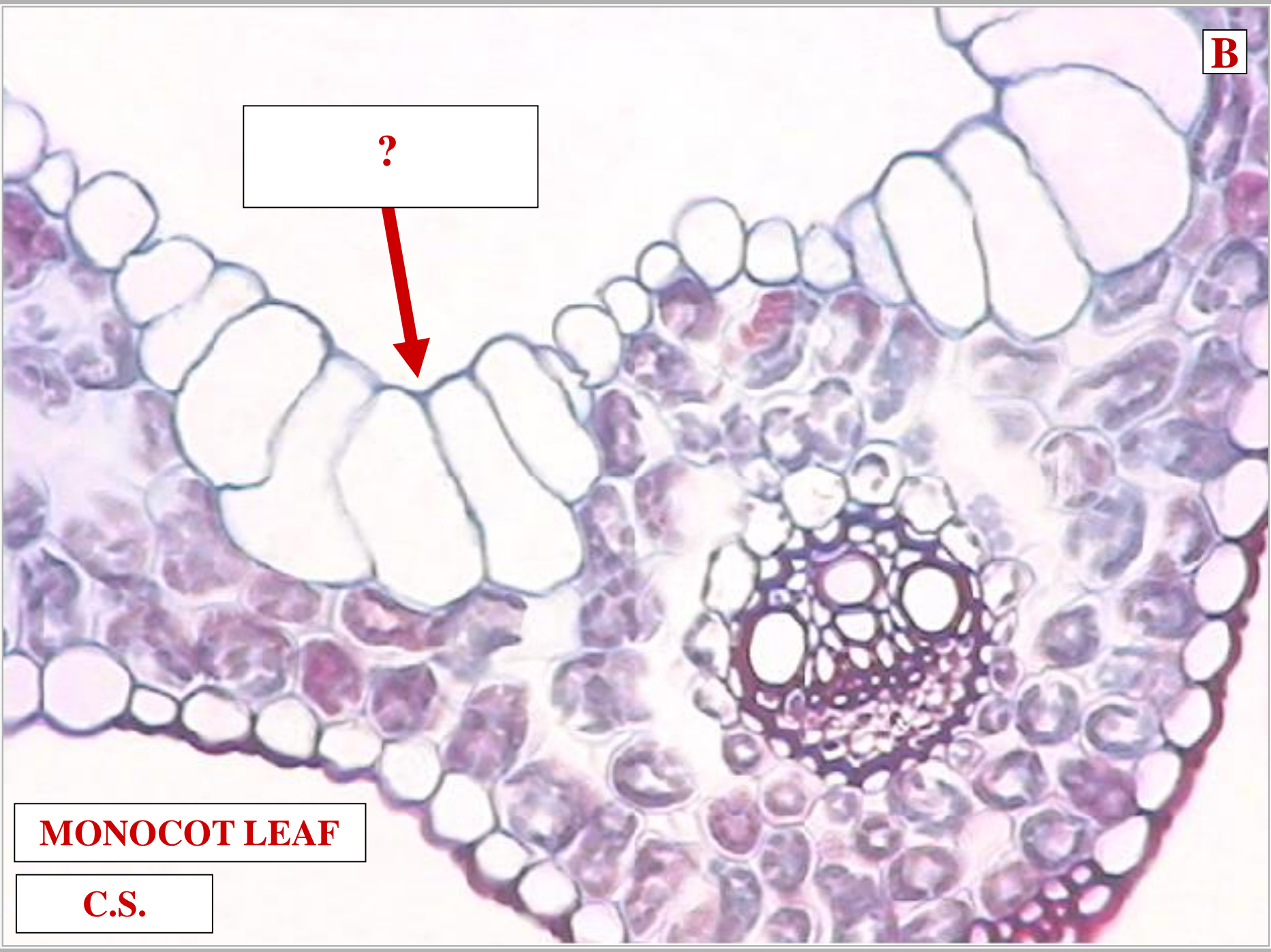
**BUNDLE SHEATH
EXTENSIONS**

MONOCOT LEAF

C.S.



B

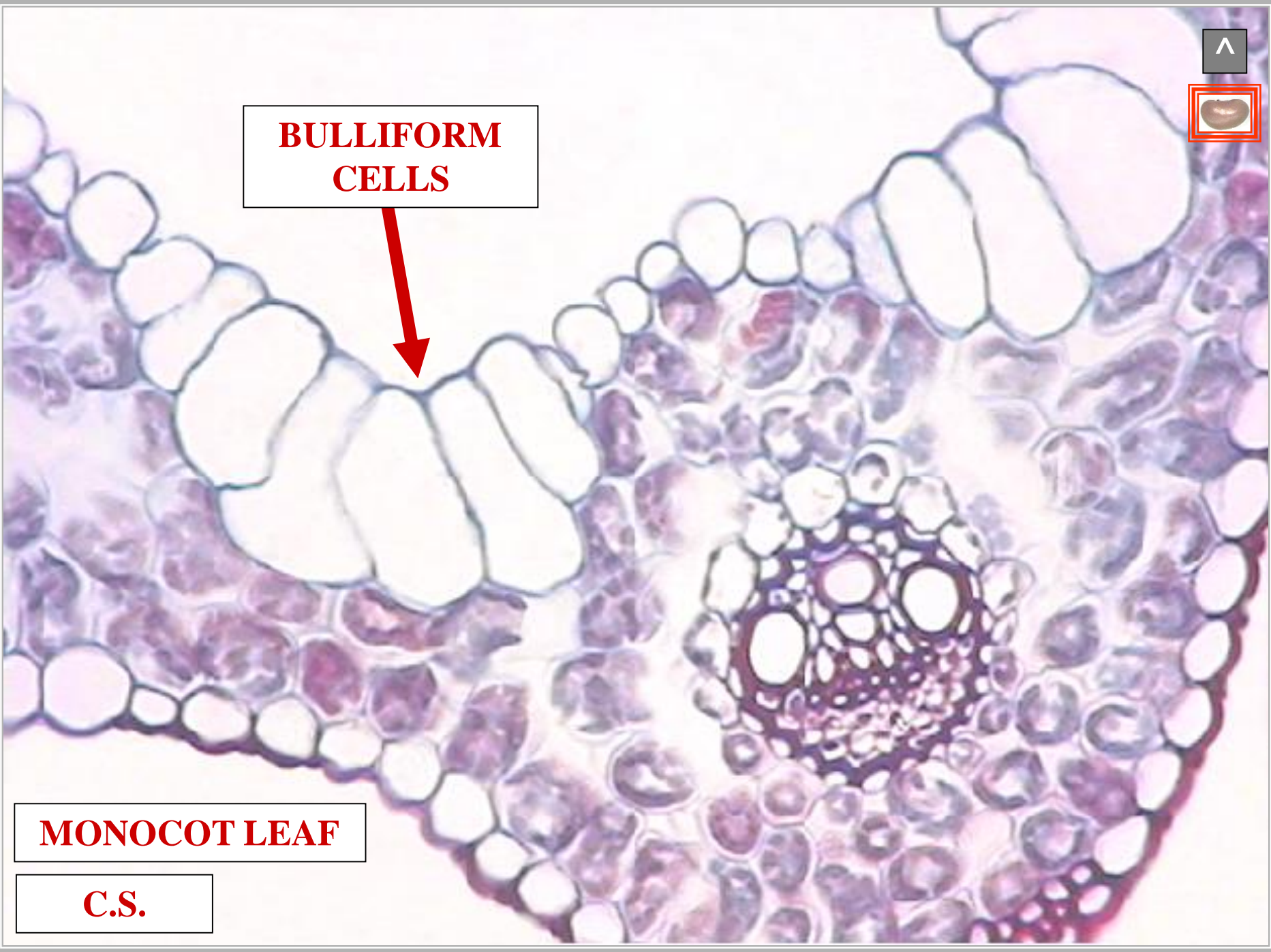


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MONOCOT LEAF

C.S.

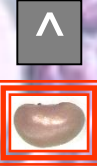


**BULLIFORM
CELLS**



MONOCOT LEAF

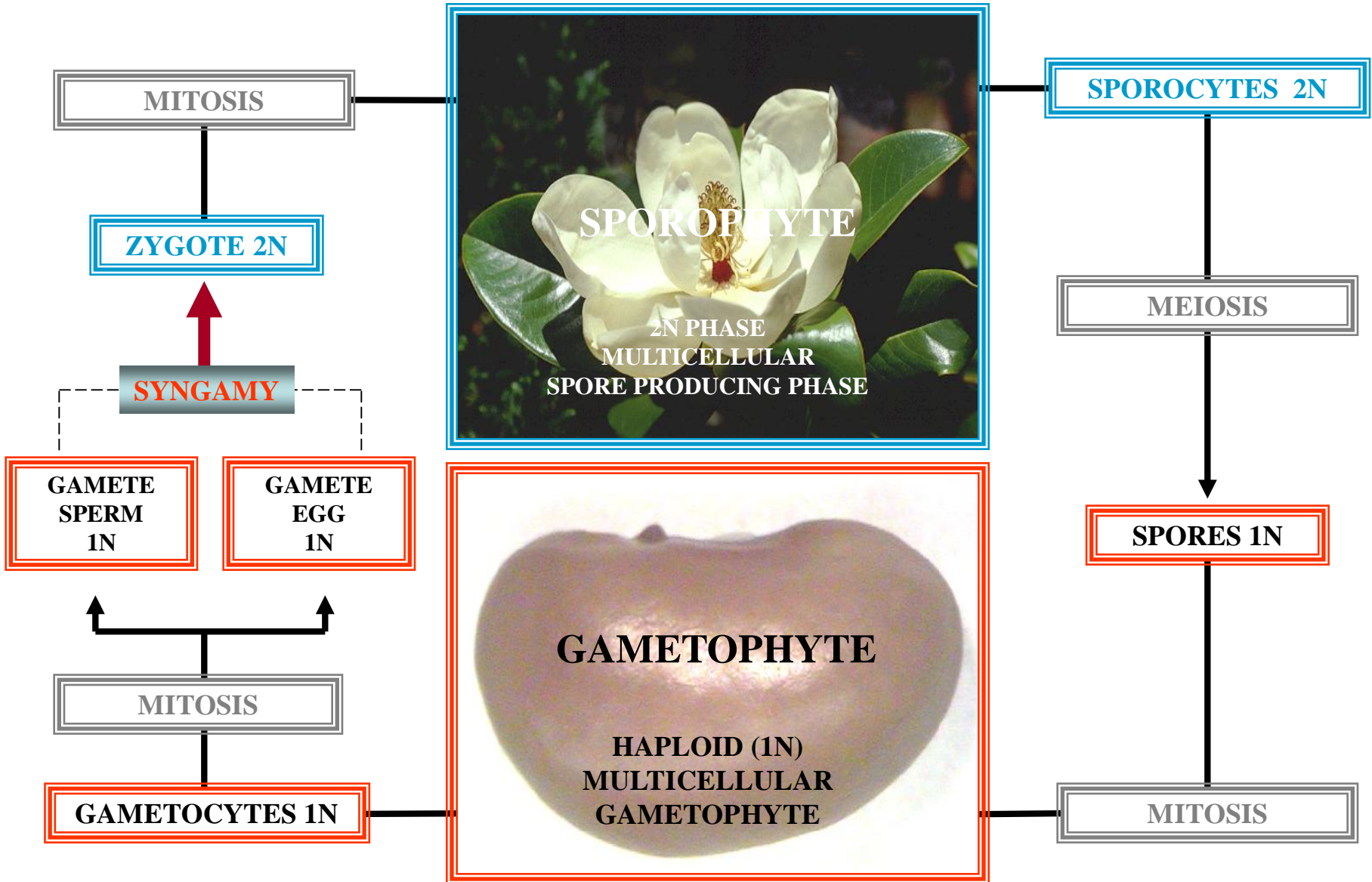
C.S.



MAGNOLIOPHYTA



LIFE CYCLE





GAMETOPHYTE CHARACTERS



ANGIOSPERM GAMETOPHYTE CONTINUED REDUCTION



MICROGAMETOPHYTE

ANGIOSPERM



L.S.

MICROGAMETOPHYTE



ANGIOSPERM

2



L.S.

POLLEN GRAIN

ANGIOSPERM

?

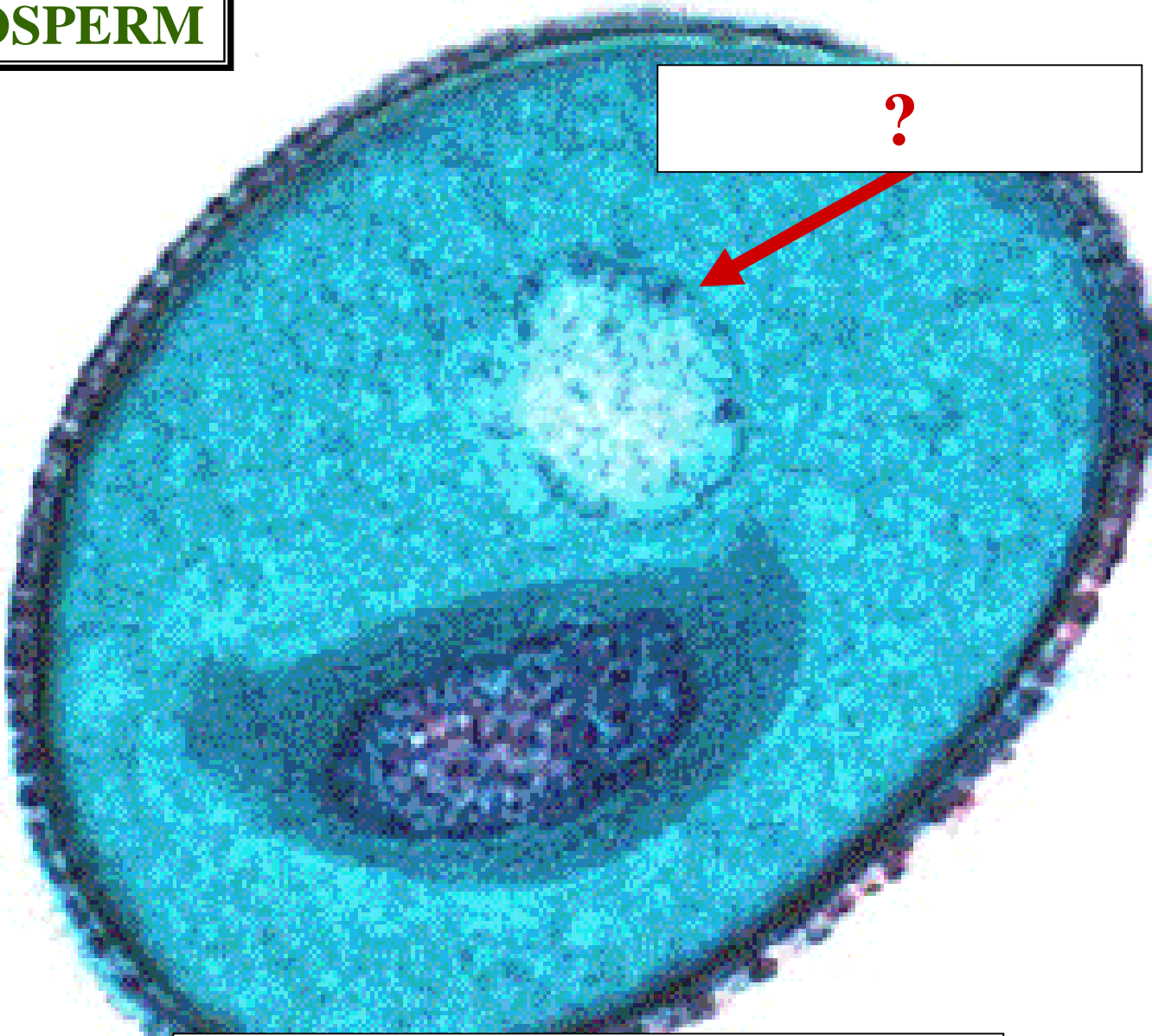


L.S.

2 CELLS

ANGIOSPERM

T



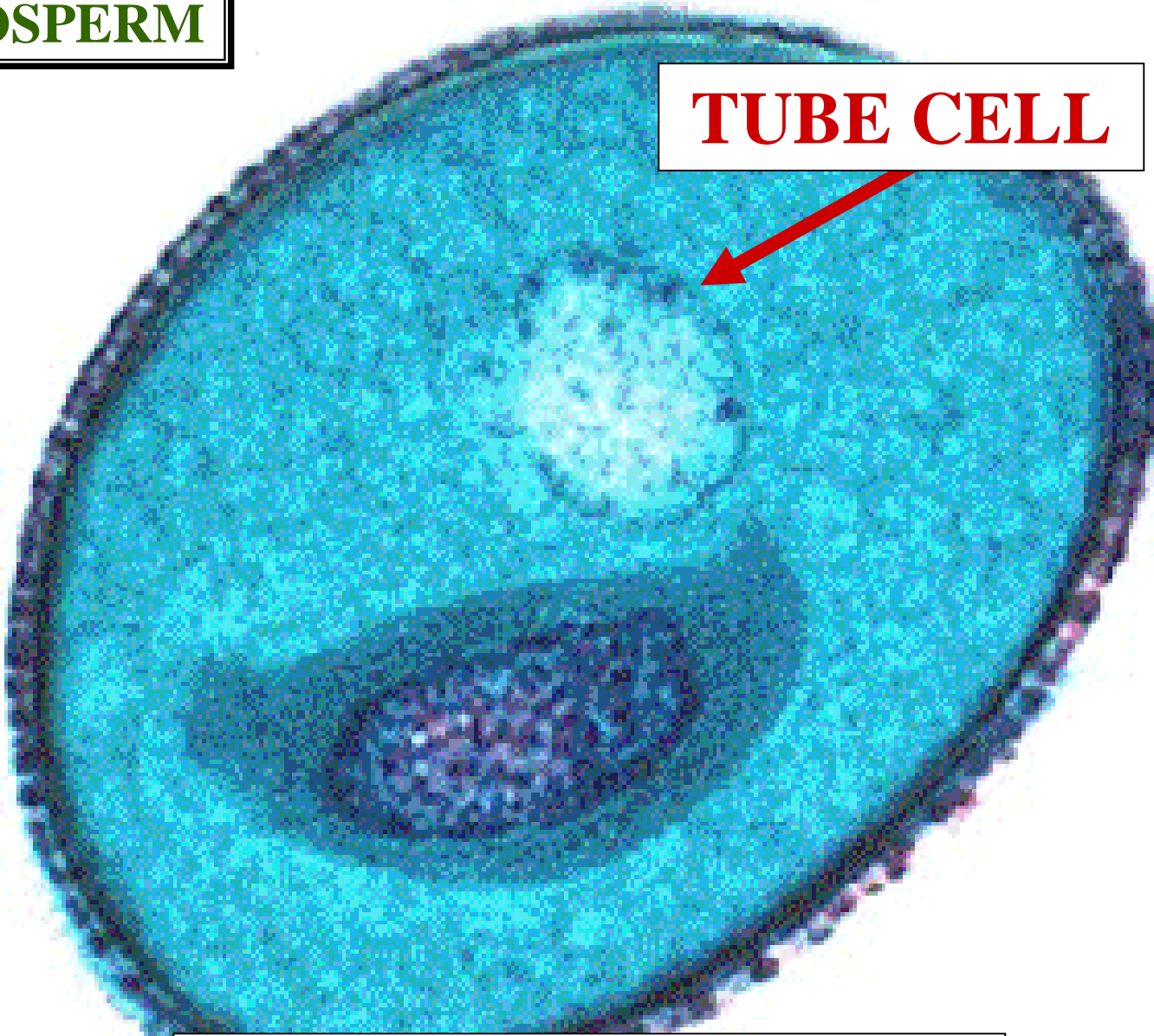
L.S.

POLLEN GRAIN

ANGIOSPERM



TUBE CELL

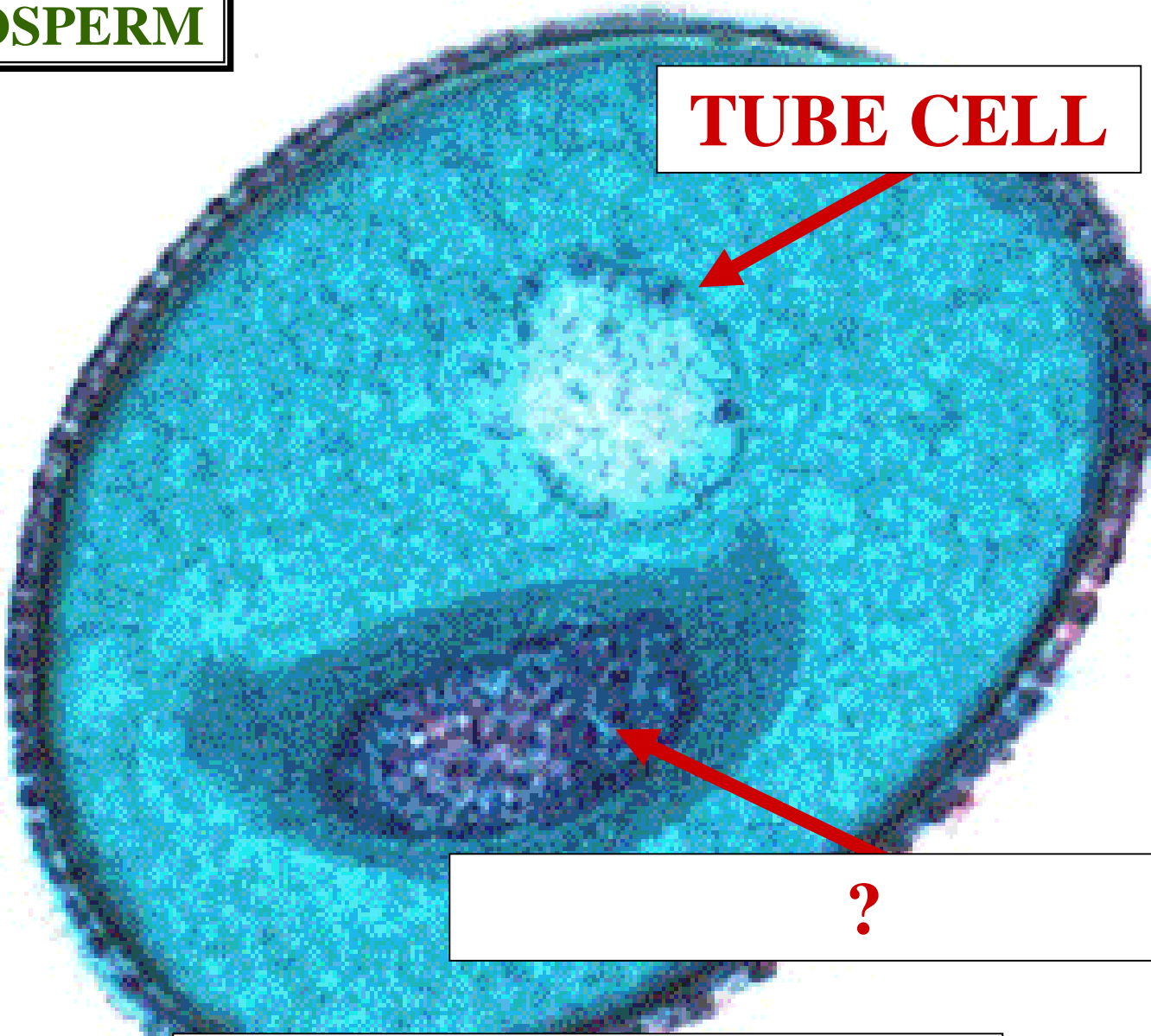


L.S.

POLLEN GRAIN

ANGIOSPERM

G



TUBE CELL

?

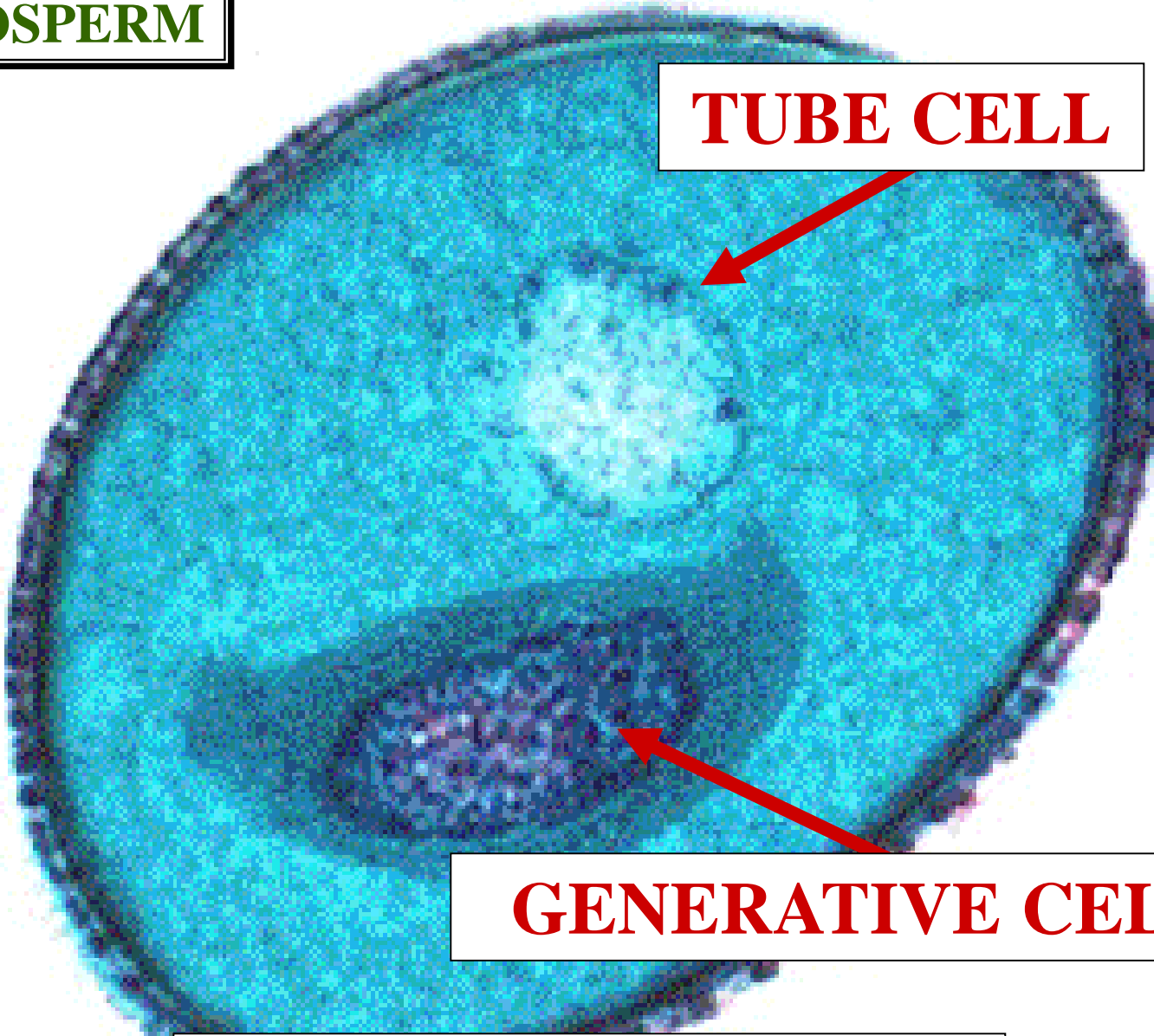
L.S.

POLLEN GRAIN

ANGIOSPERM

>

AB



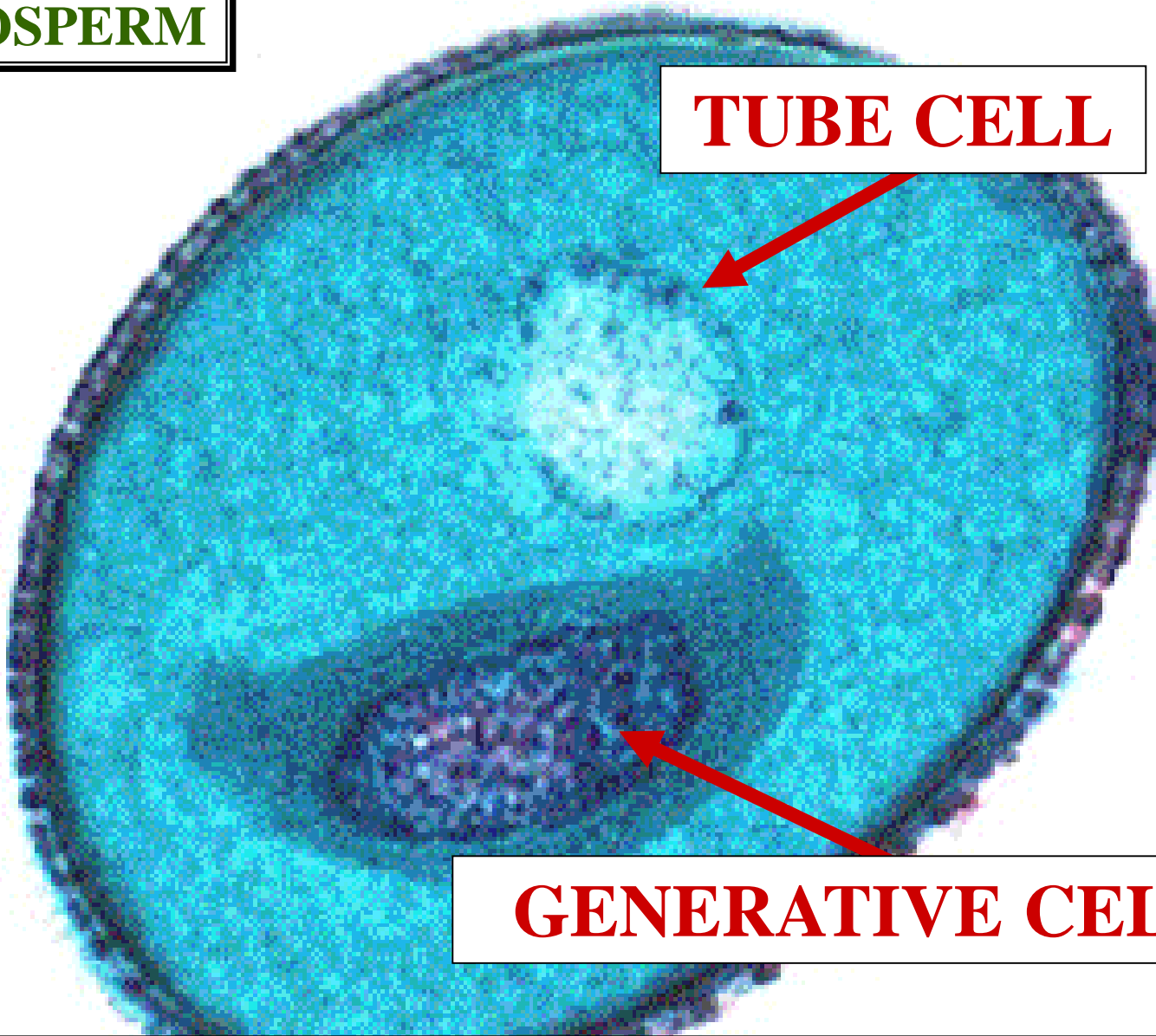
TUBE CELL

GENERATIVE CELL

L.S.

POLLEN GRAIN

ANGIOSPERM



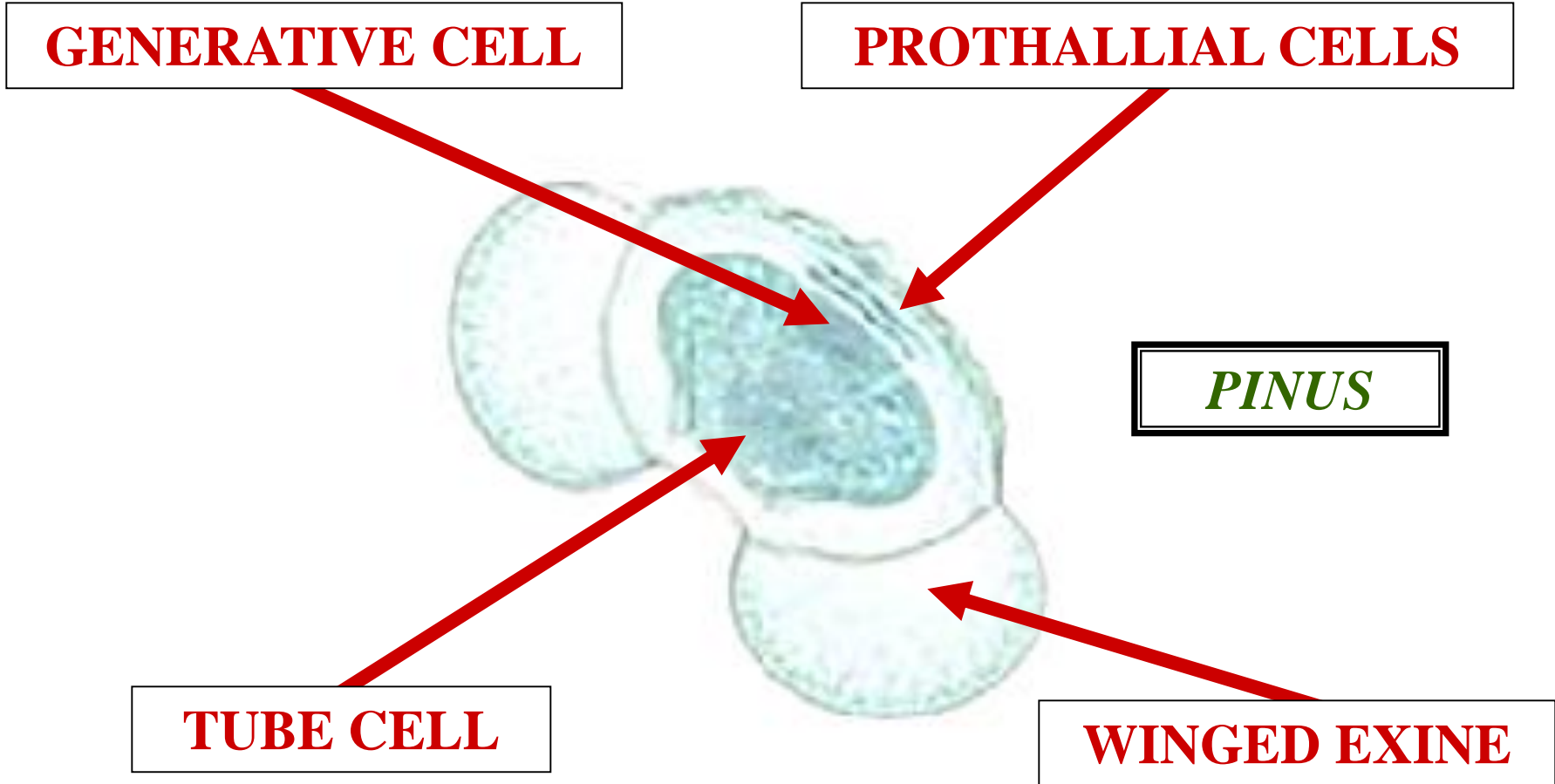
TUBE CELL

GENERATIVE CELL

PROTHALLIAL CELLS: ABSENT

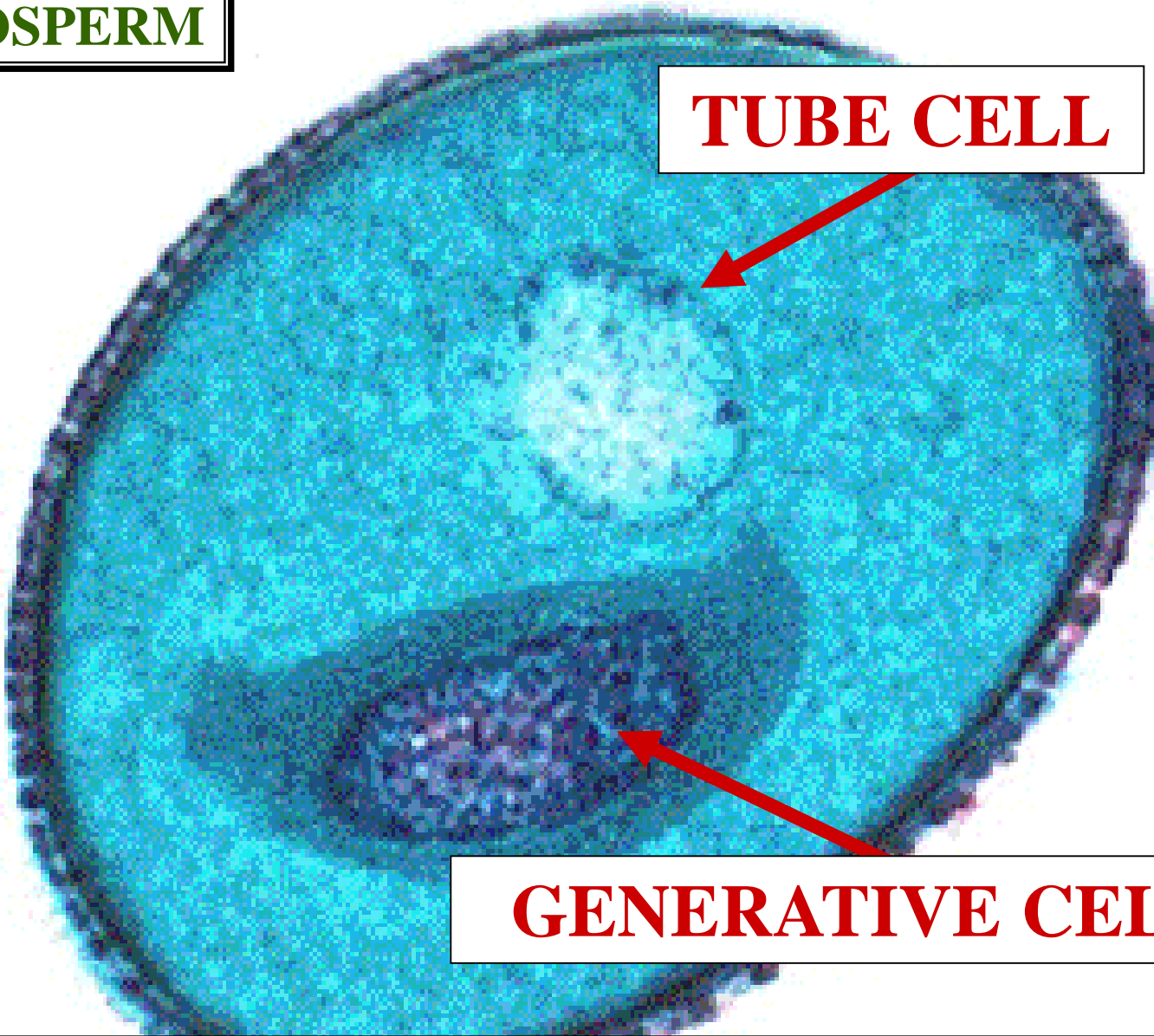


GYMNOSPERM



POLLEN GRAIN

ANGIOSPERM



TUBE CELL

GENERATIVE CELL

PROTHALLIAL CELLS: ABSENT



MEGAGAMETOPHYTE



SYNONYM



MEGAGAMETOPHYTE

SYNONYMOUS

EMBRYO SAC



EMBRYO SAC

Type	Megasporocyte	Meiosis		First Mitosis	Second Mitosis	Third Mitosis	Mature embryo sac
Polygonum							
Allium							
Penaea							
Lilium							
Plumbagella							
Plumbago							

**ANGIOSPERM
EMBRYO SAC
NUMEROUS
TYPES**

Fusion Triploid

Fusion

Triploid

Type	Megasporocyte	Meiosis		First Mitosis	Second Mitosis	Third Mitosis	Mature embryo sac
<u>Polygonum</u>							
Allium							
Penaea							
Lilium							
Plumbagella							
Plumbago							





ST



POLYGONUM



POLYGONUM

TYPE

EMBRYO SAC

STANDARD

EXAMPLE

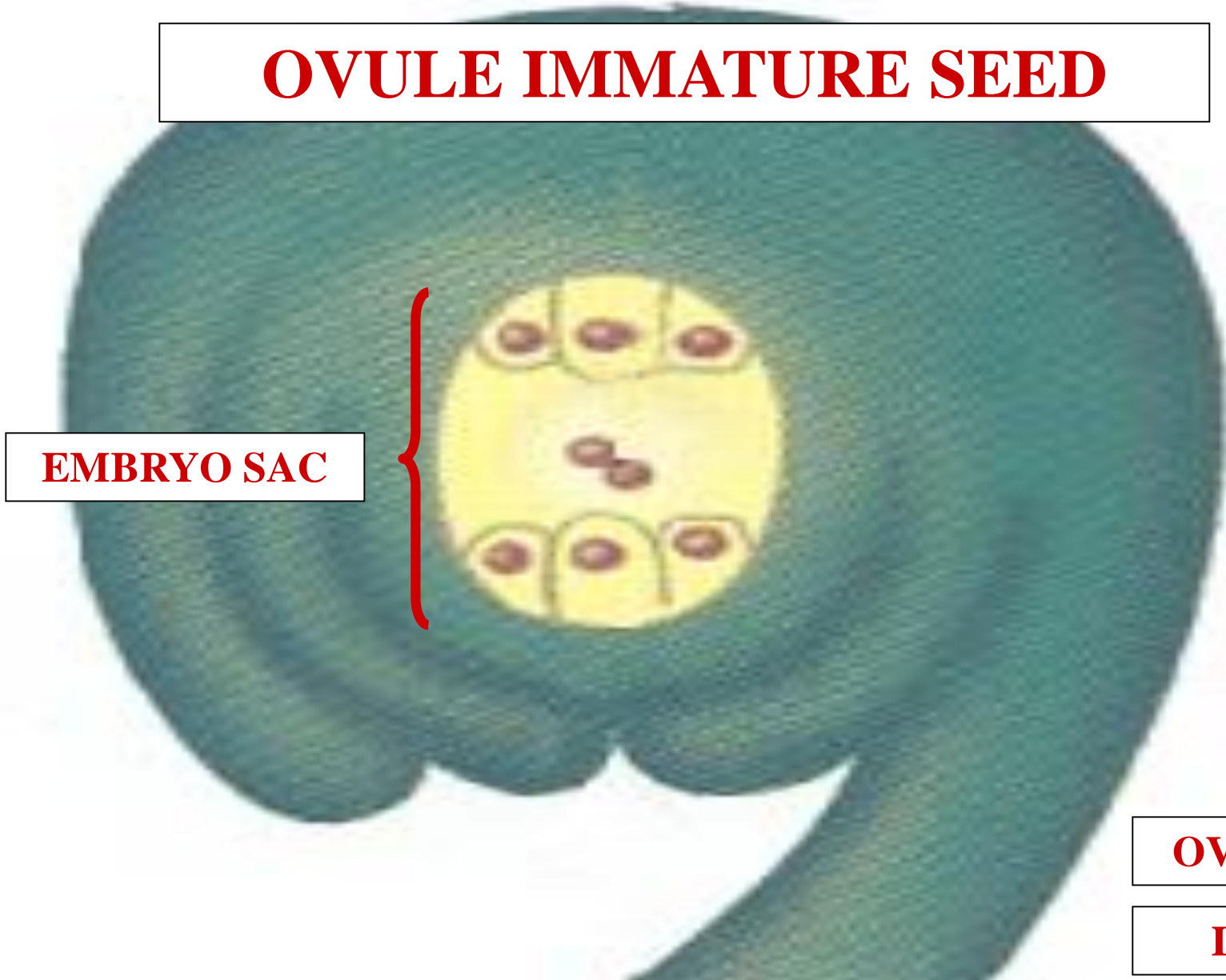


POLYGONUM
EMBRYO SAC

POLYGONUM EMBRYO SAC

7

OVULE IMMATURE SEED



EMBRYO SAC

OVULE

L.S.

POLYGONUM EMBRYO SAC

?

EMBRYO SAC
7 CELLS
8 NUCLEI

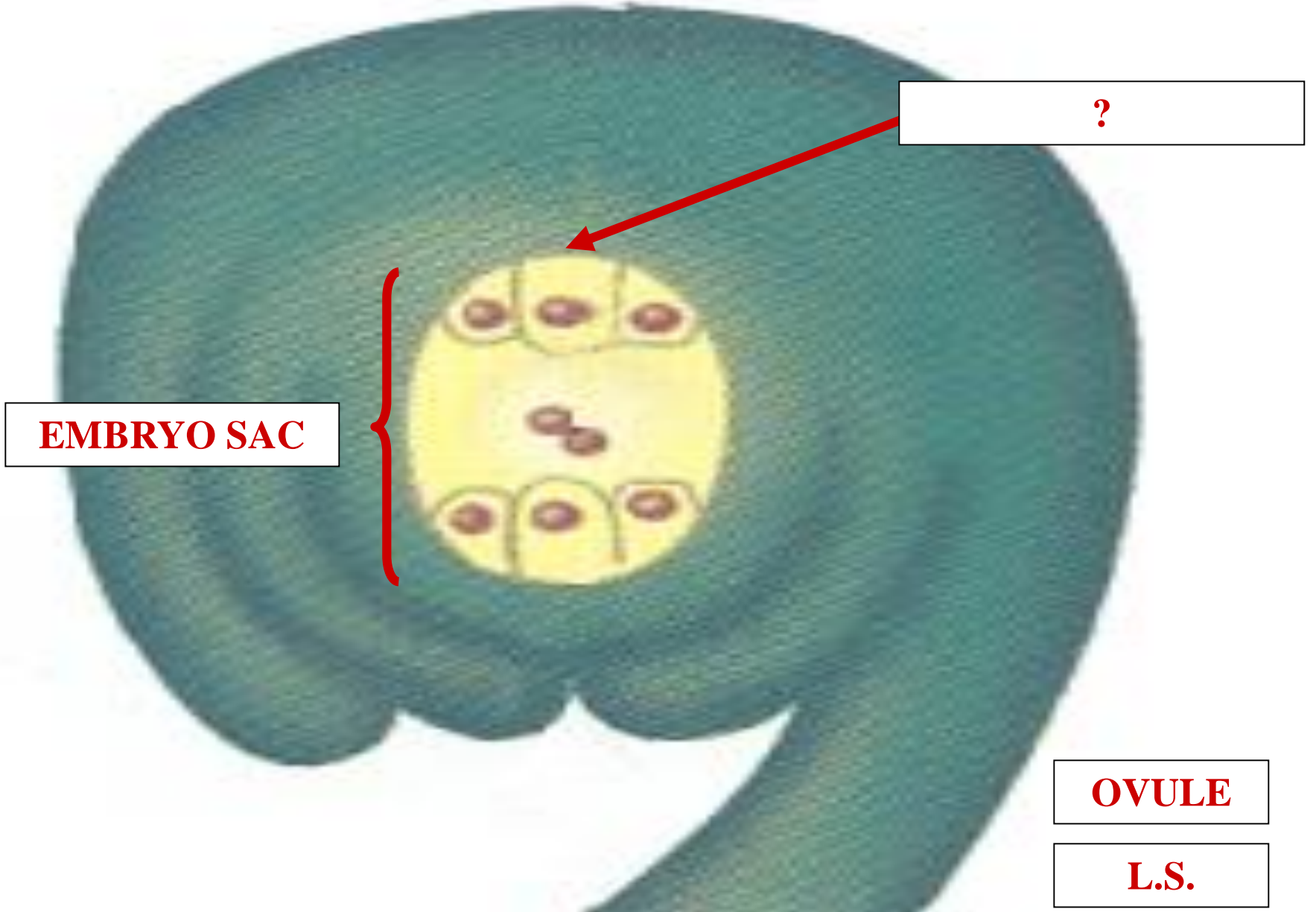


OVULE

L.S.

POLYGONUM EMBRYO SAC

C



?

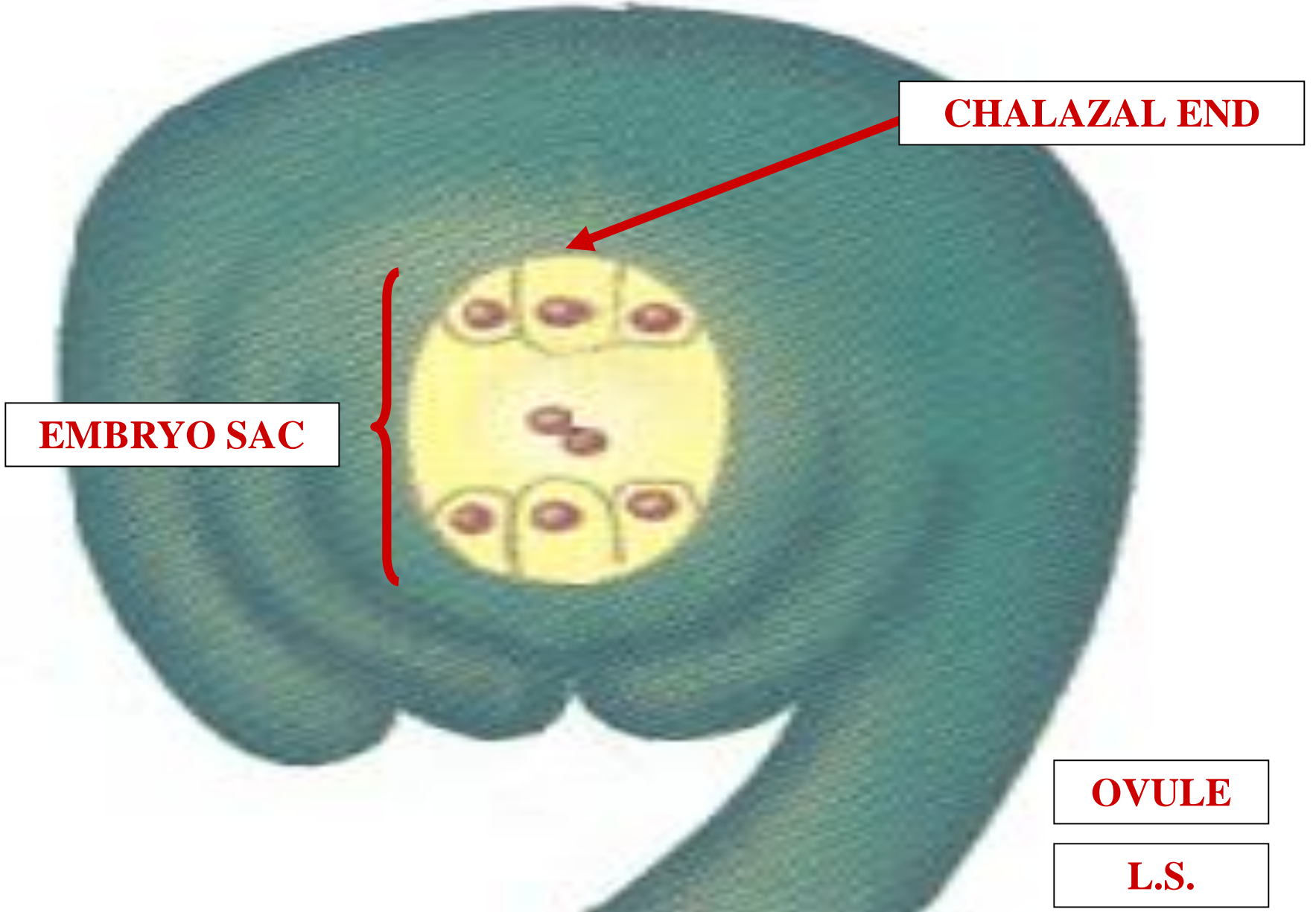
EMBRYO SAC

OVULE

L.S.

POLYGONUM EMBRYO SAC

?



CHALAZAL END

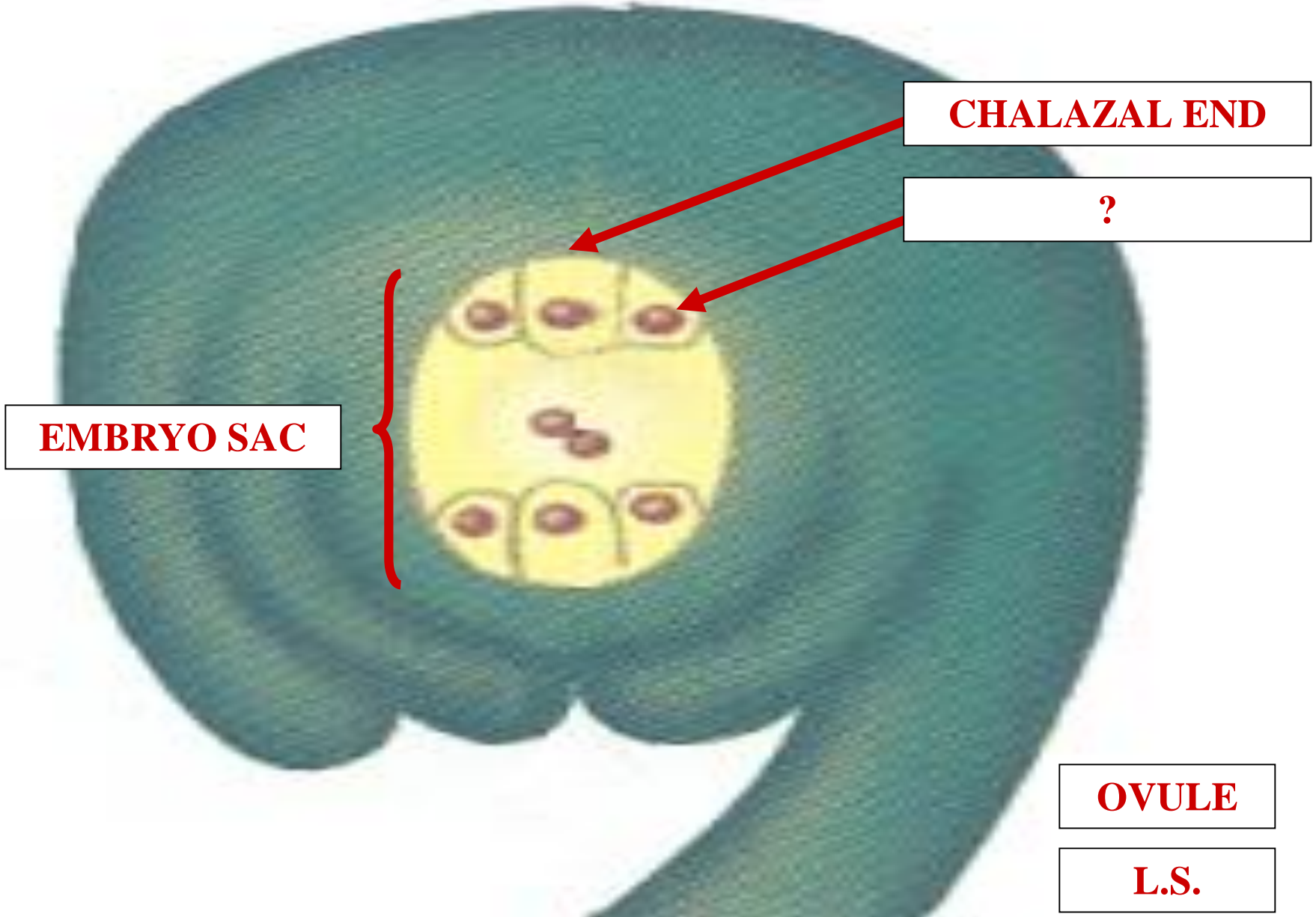
EMBRYO SAC

OVULE

L.S.

POLYGONUM EMBRYO SAC

A



CHALAZAL END

?

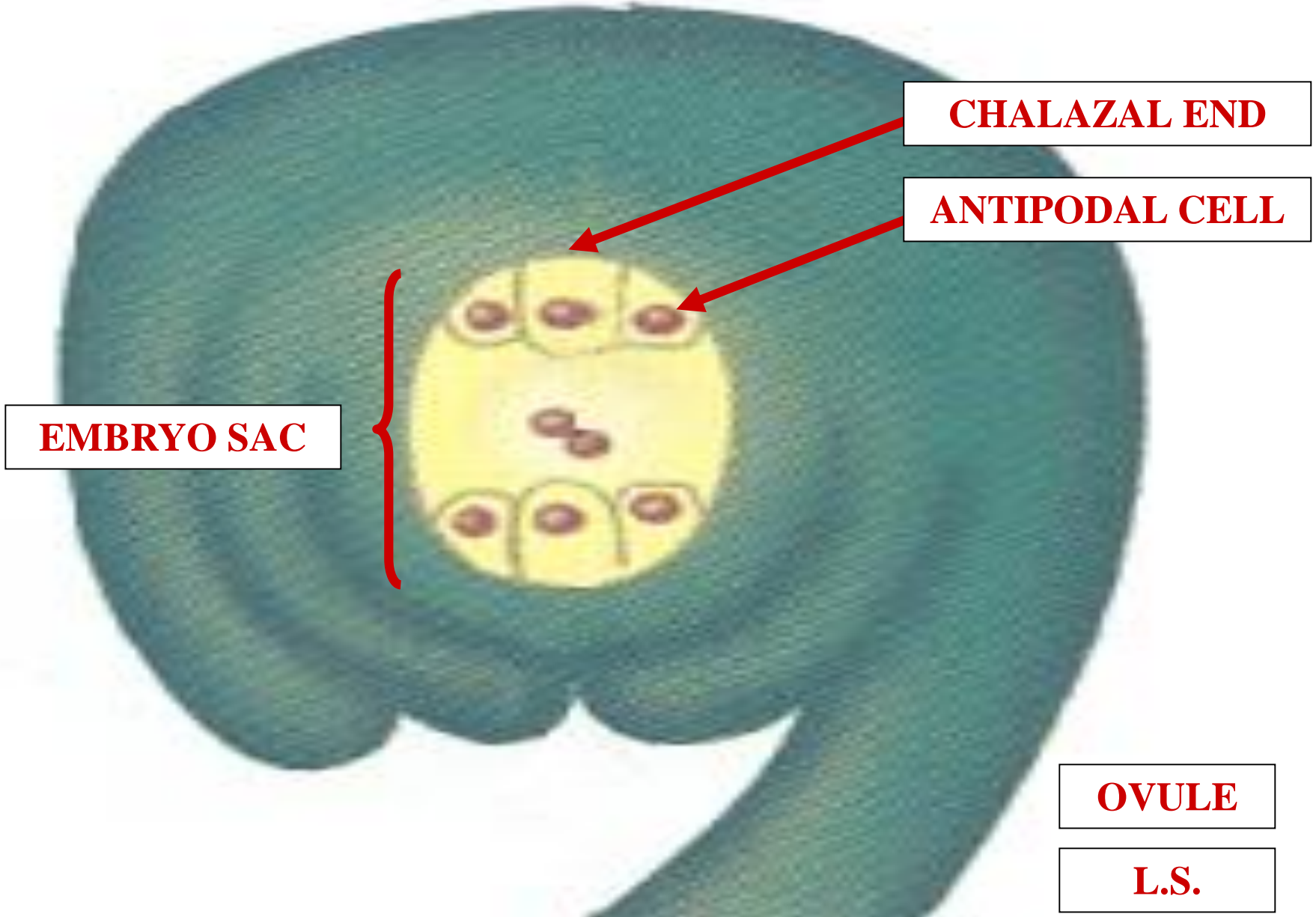
EMBRYO SAC

OVULE

L.S.

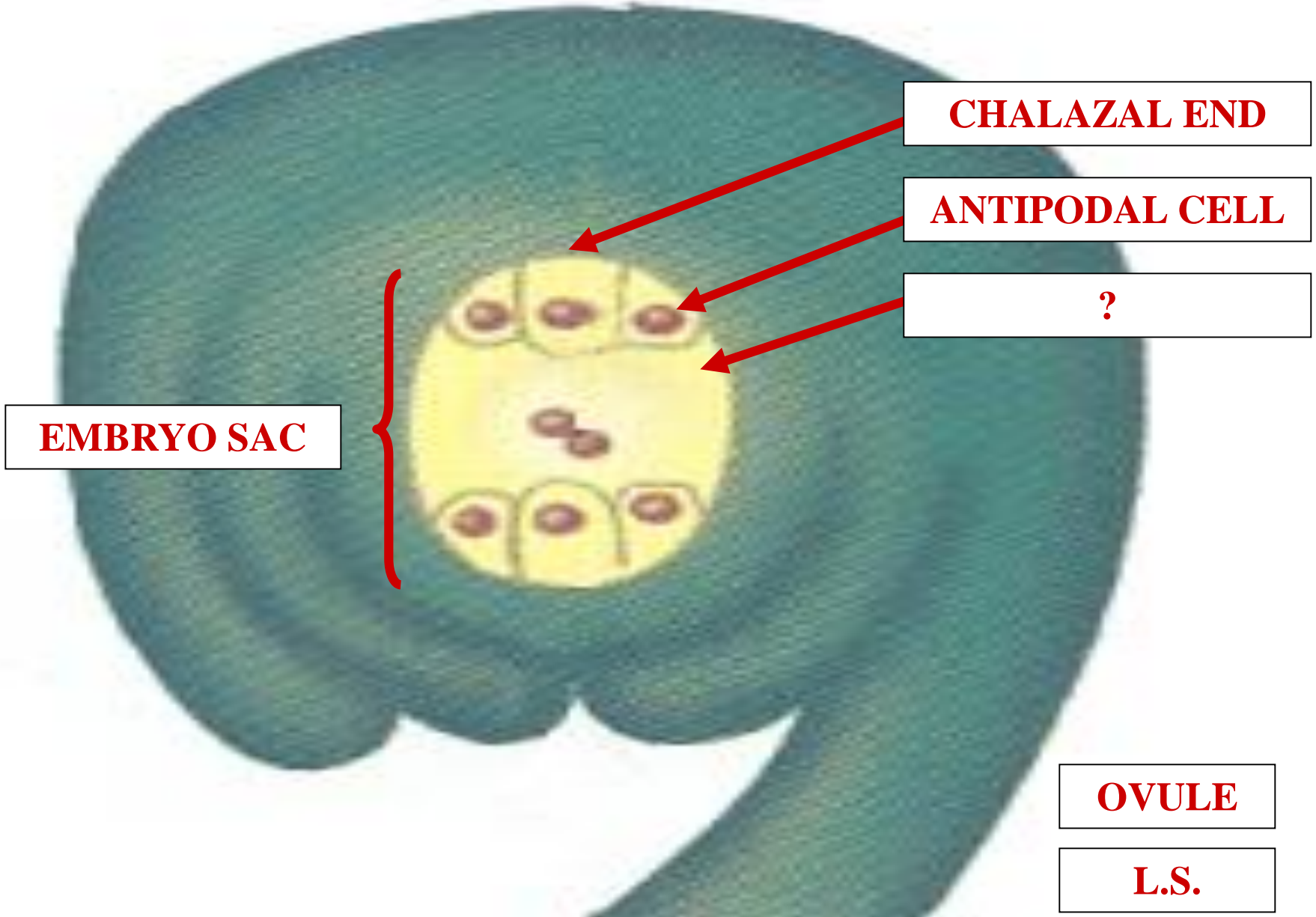
POLYGONUM EMBRYO SAC

?



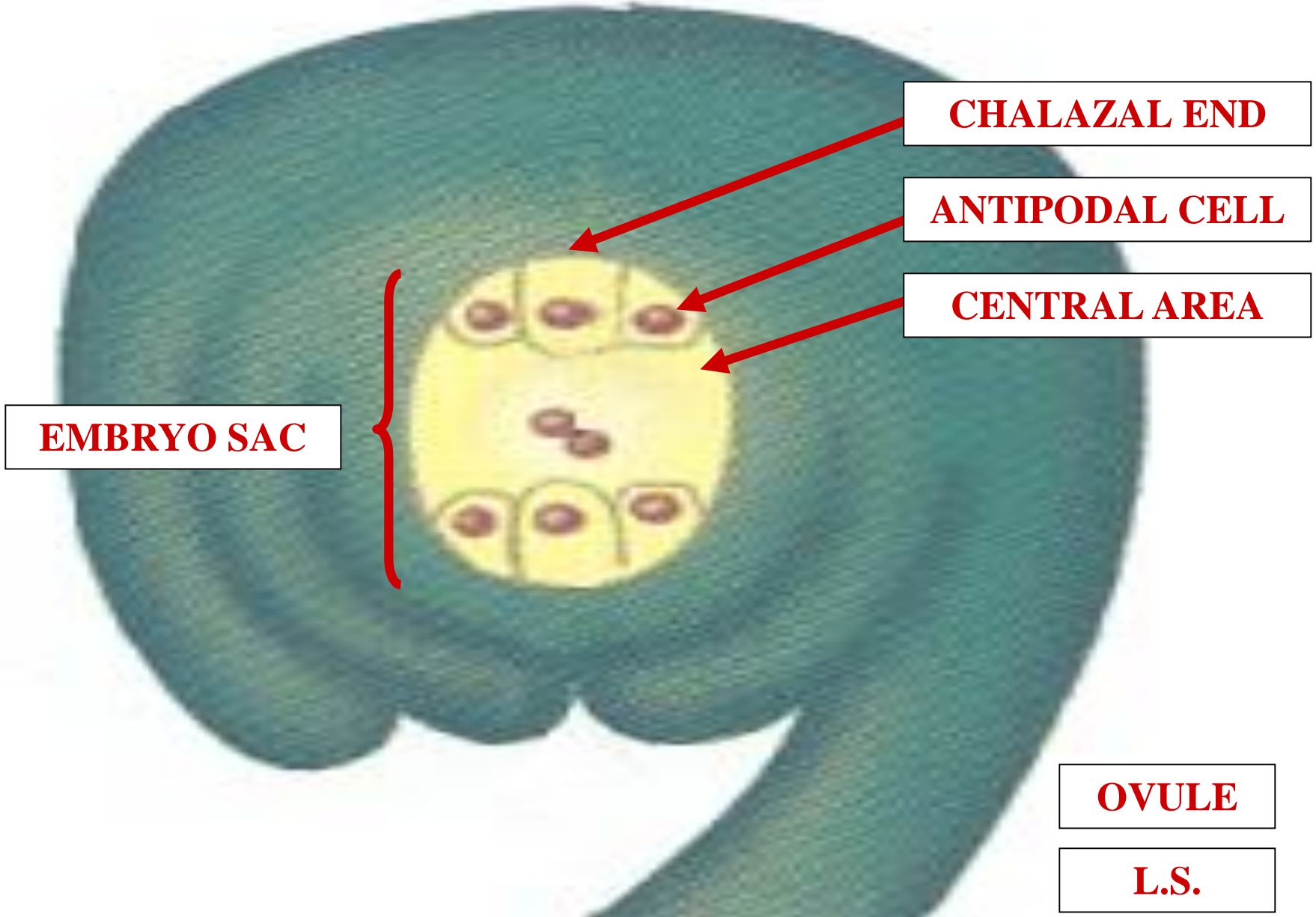
POLYGONUM EMBRYO SAC

C



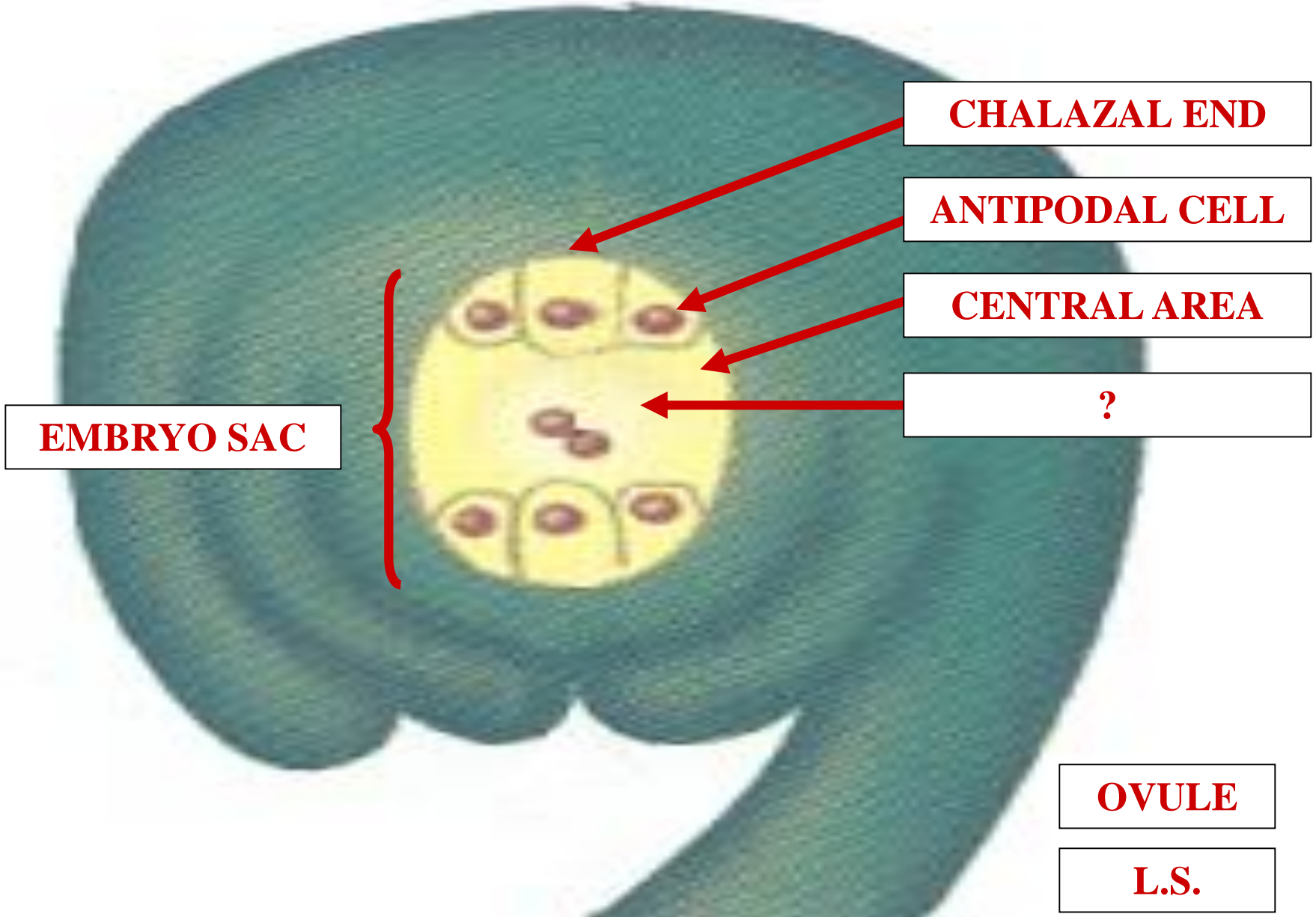
POLYGONUM EMBRYO SAC

?



POLYGONUM EMBRYO SAC

C



CHALAZAL END

ANTIPODAL CELL

CENTRAL AREA

?

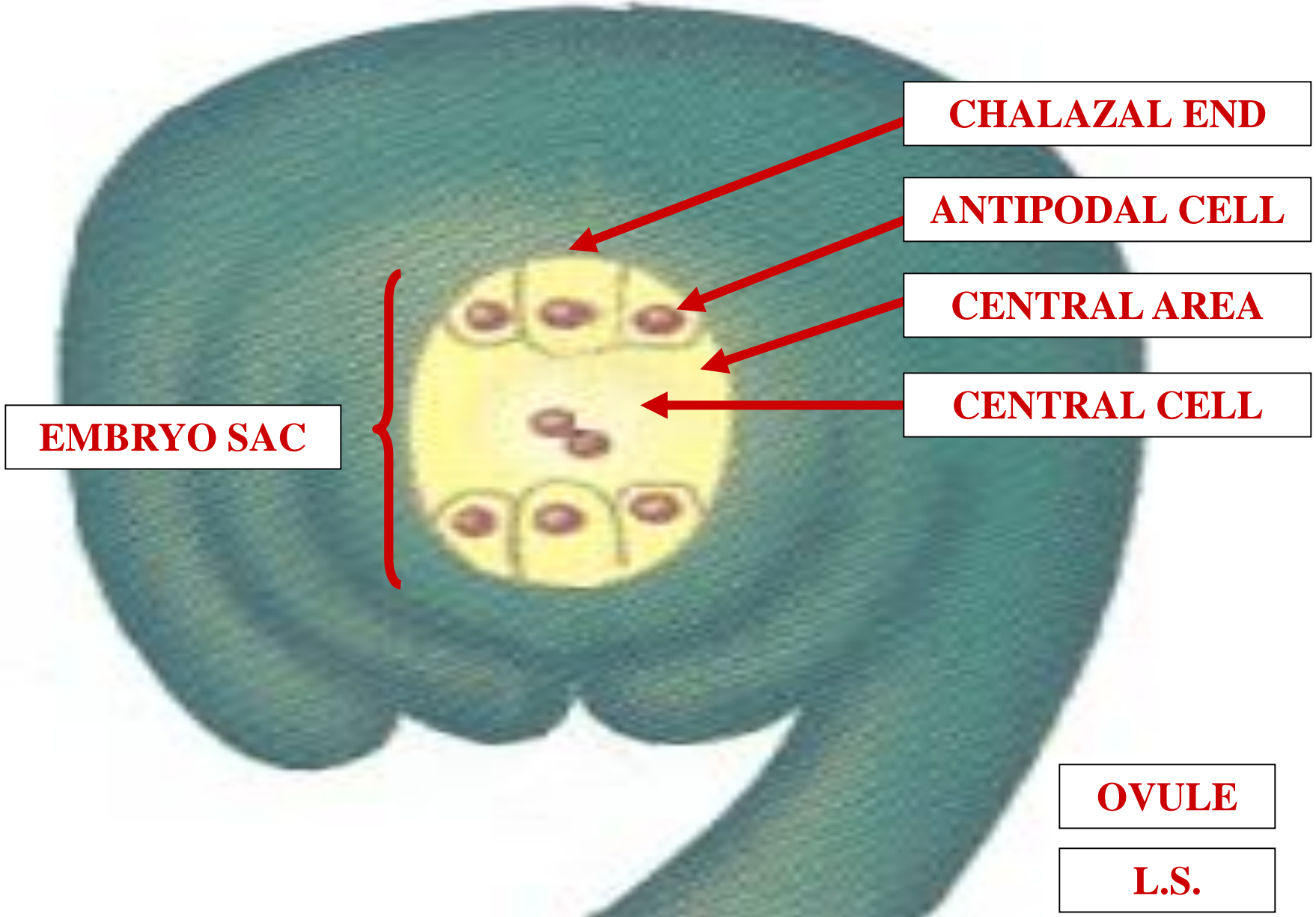
EMBRYO SAC

OVULE

L.S.

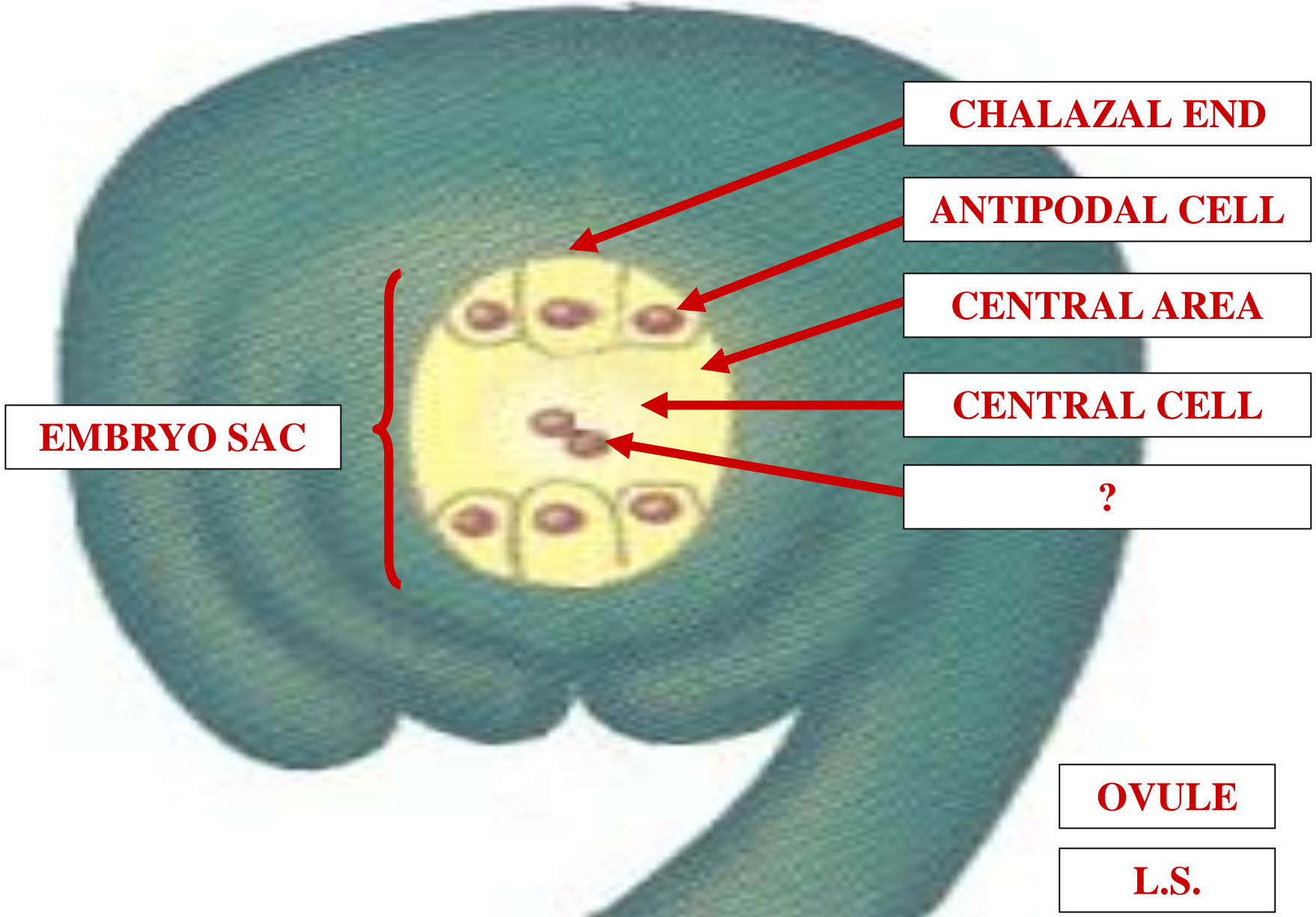
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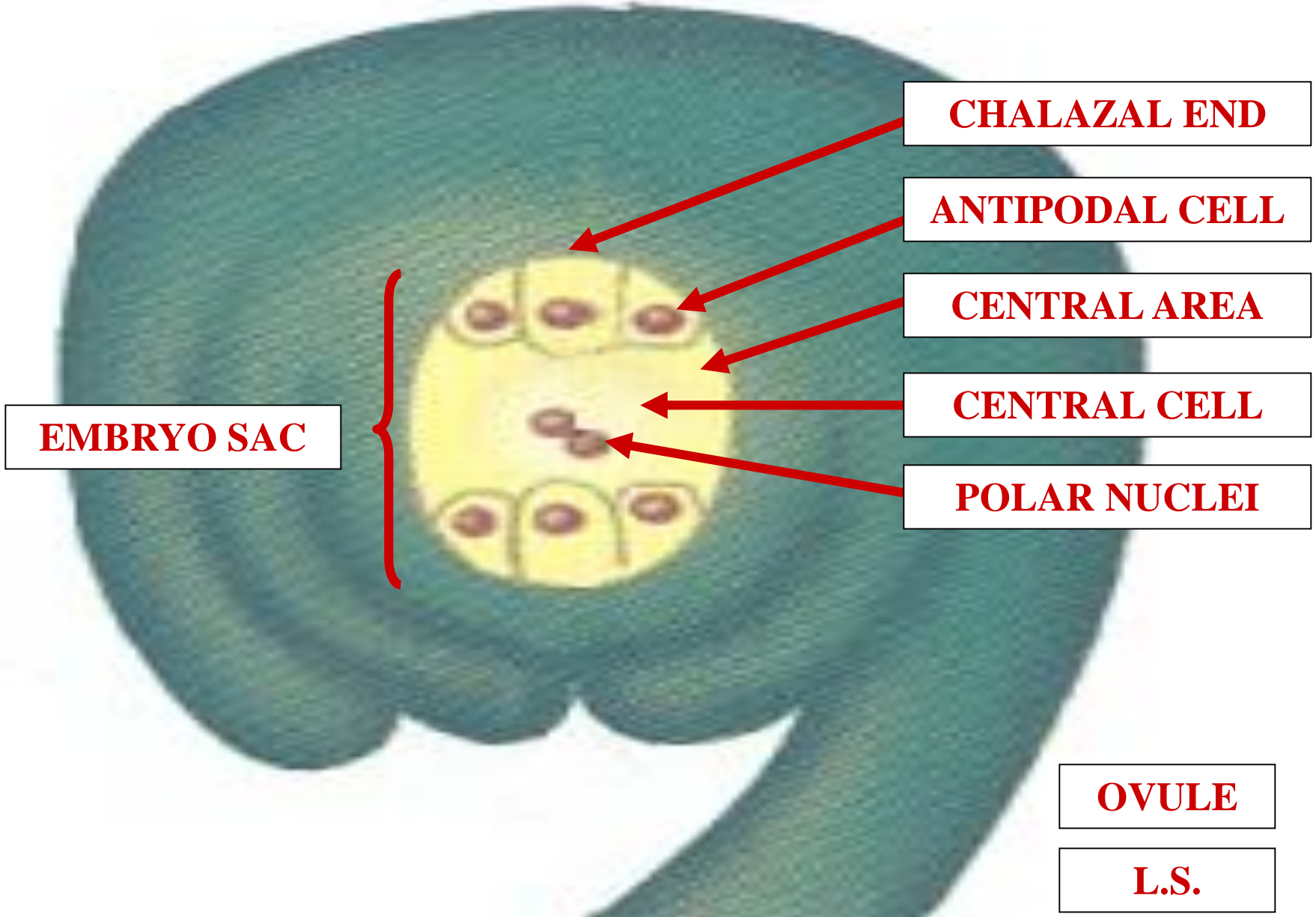
POLYGONUM EMBRYO SAC

P



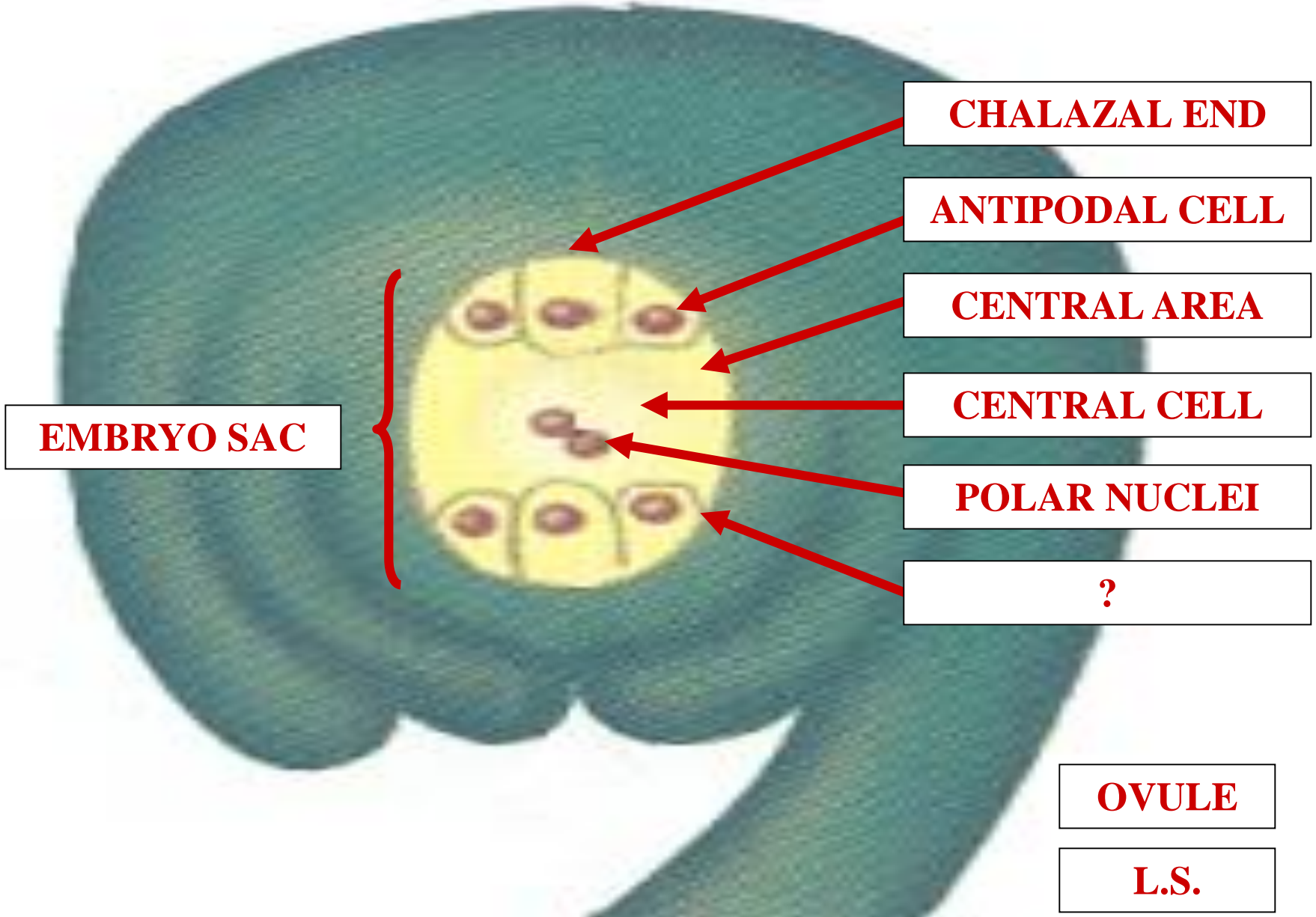
POLYGONUM EMBRYO SAC

?



POLYGONUM EMBRYO SAC

A



CHALAZAL END

ANTIPODAL CELL

CENTRAL AREA

CENTRAL CELL

POLAR NUCLEI

?

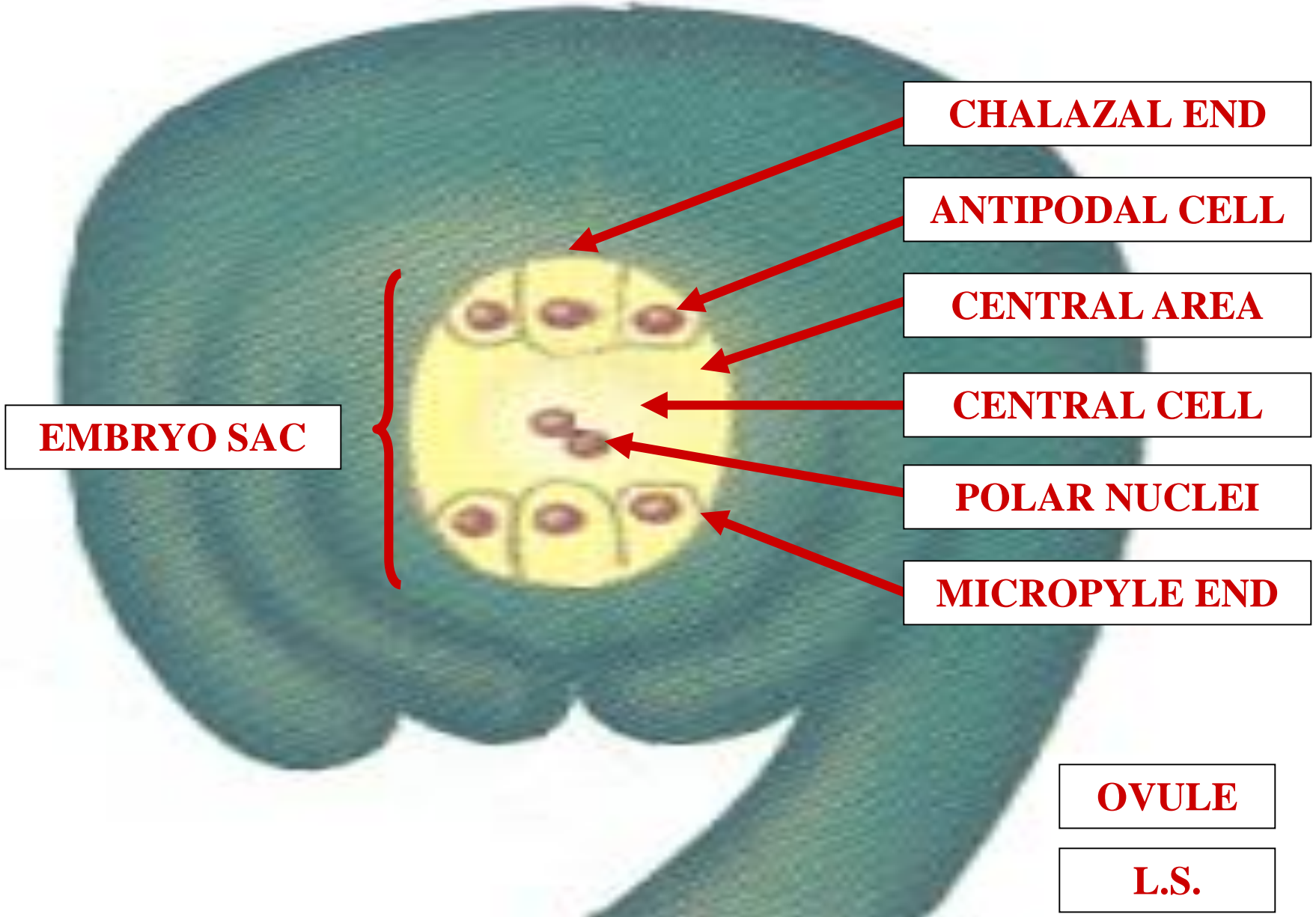
EMBRYO SAC

OVULE

L.S.

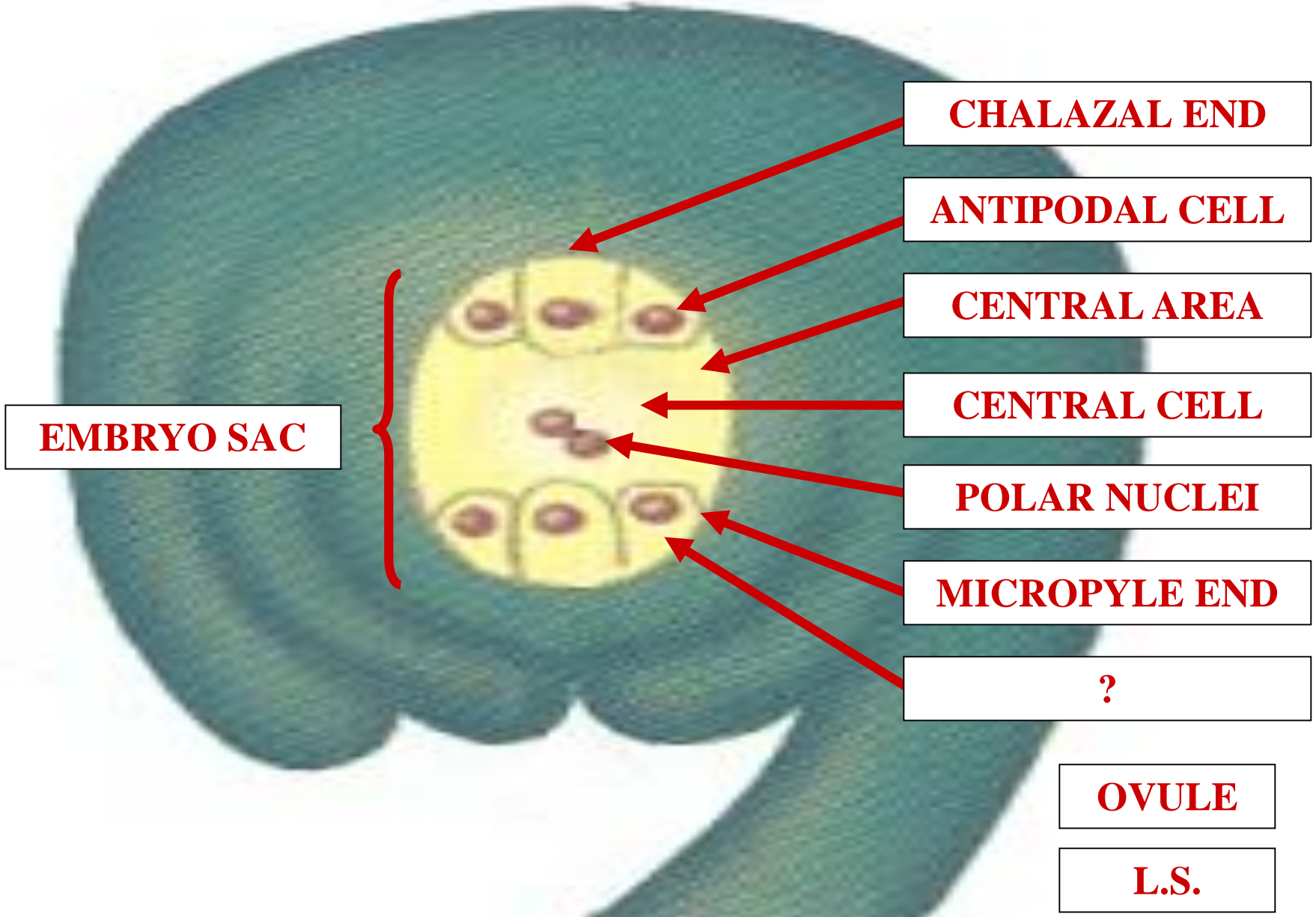
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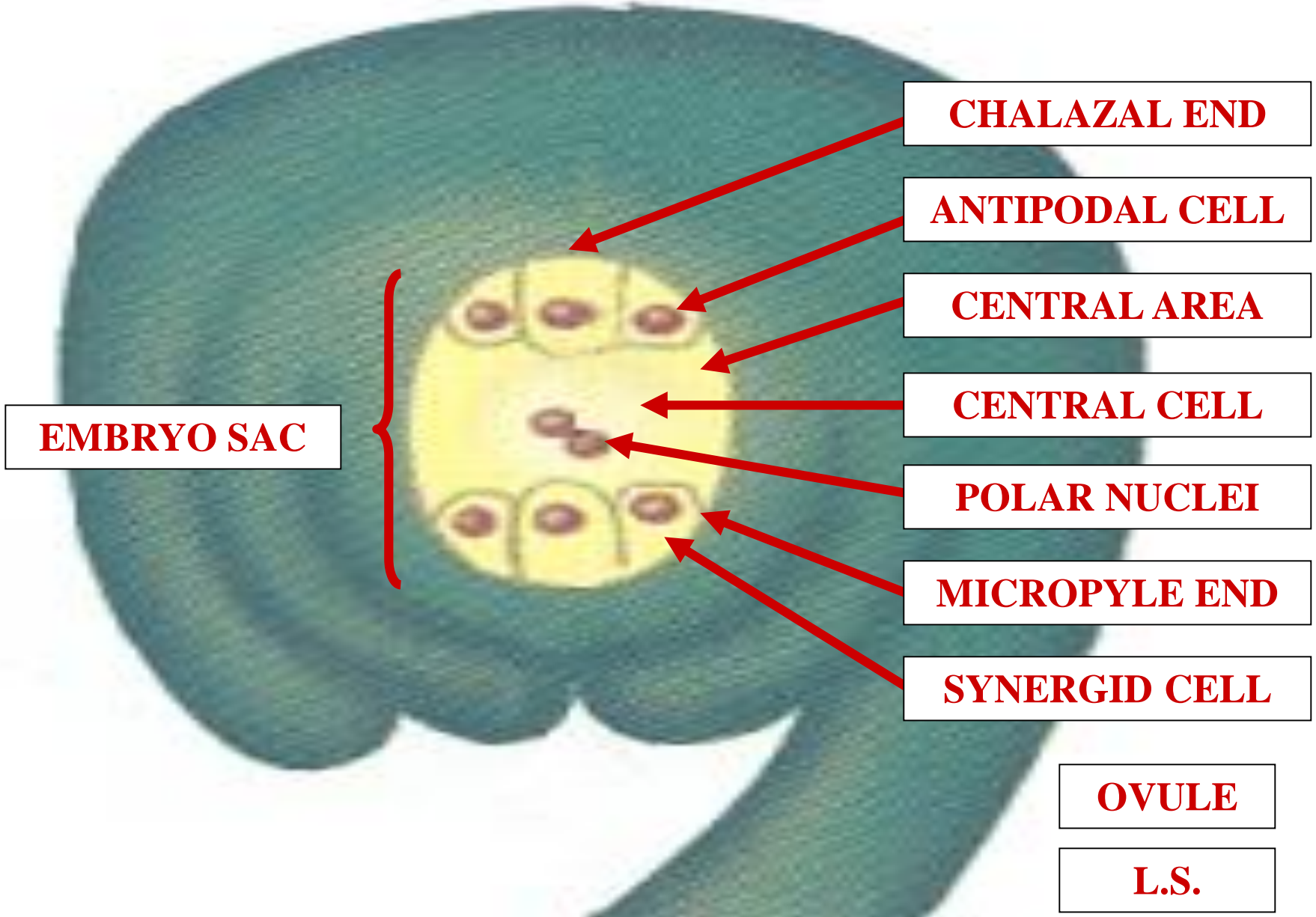
POLYGONUM EMBRYO SAC

S

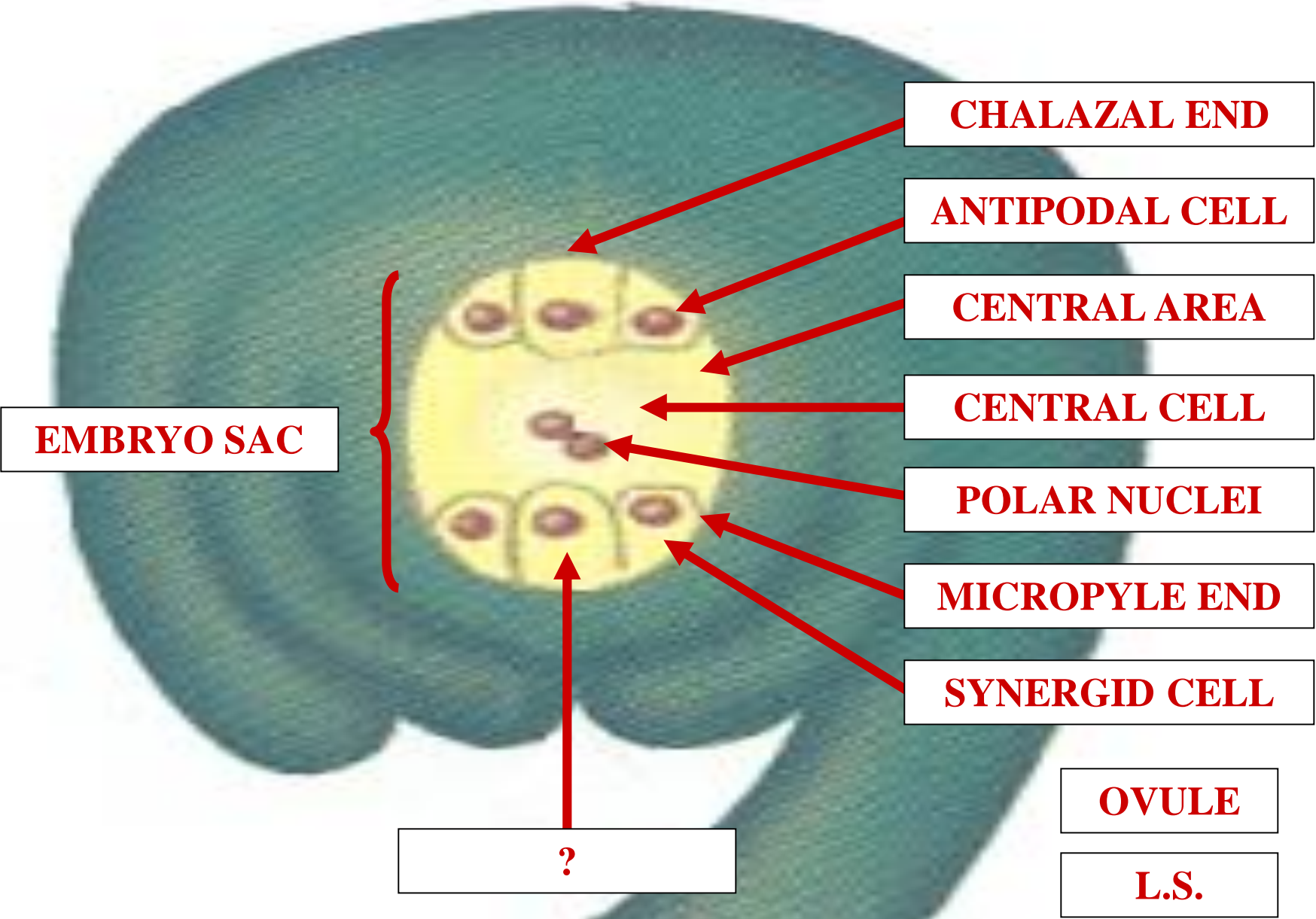


POLYGONUM EMBRYO SAC

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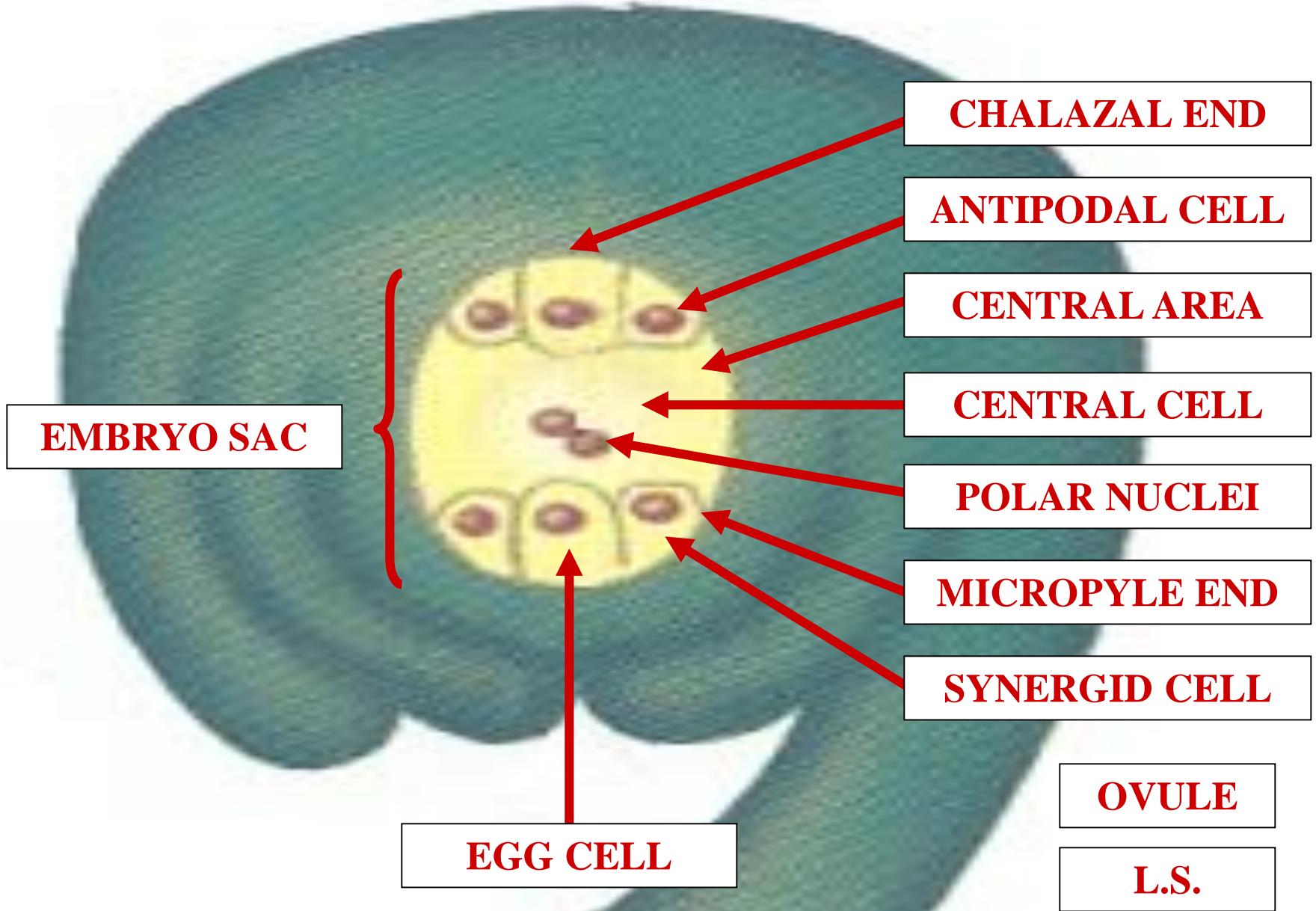
POLYGONUM EMBRYO SAC



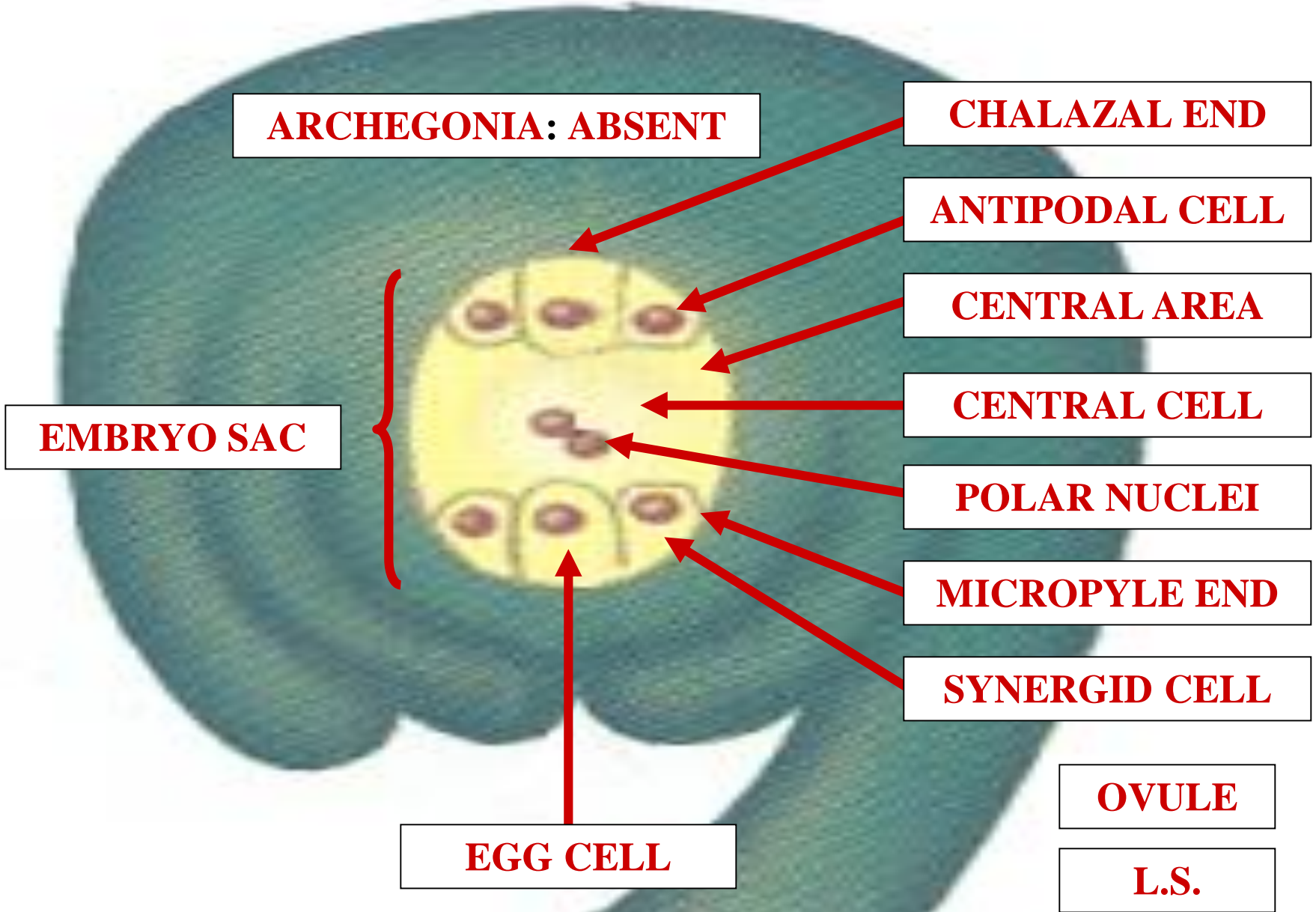
POLYGONUM EMBRYO SAC

>

AB



POLYGONUM EMBRYO SAC



ARCHEGONIA: ABSENT

CHALAZAL END

ANTIPODAL CELL

CENTRAL AREA

CENTRAL CELL

POLAR NUCLEI

MICROPYLE END

SYNERGID CELL

OVULE

L.S.

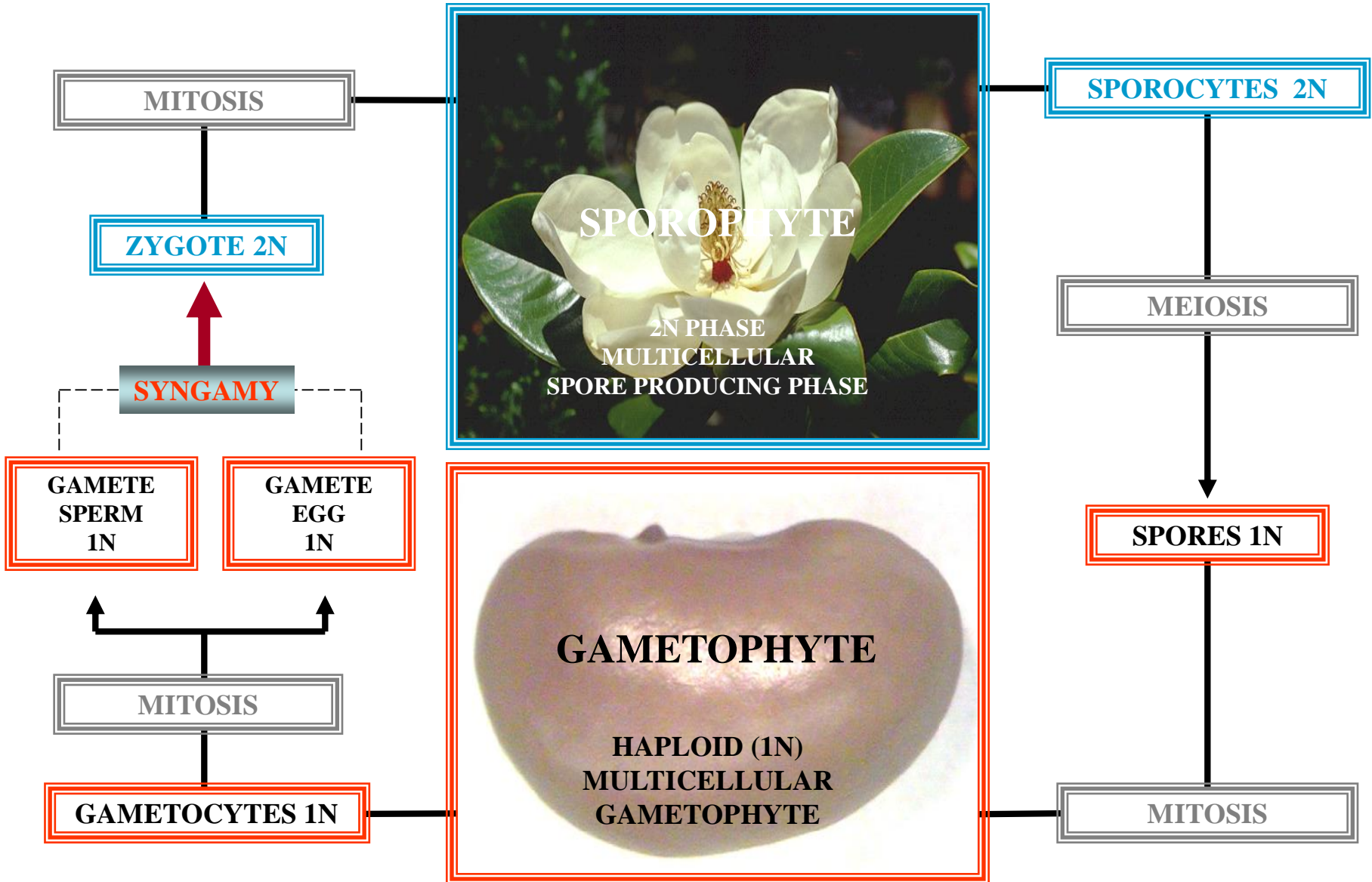
EMBRYO SAC

EGG CELL

MAGNOLIOPHYTA



LIFE CYCLE





REPRODUCTION

FLOWER

FLOWER

ANGIOSPERM FLOWER



AGGREGATE MODIFIED
REPRODUCTIVE LEAVES

ANGIOSPERM FLOWER

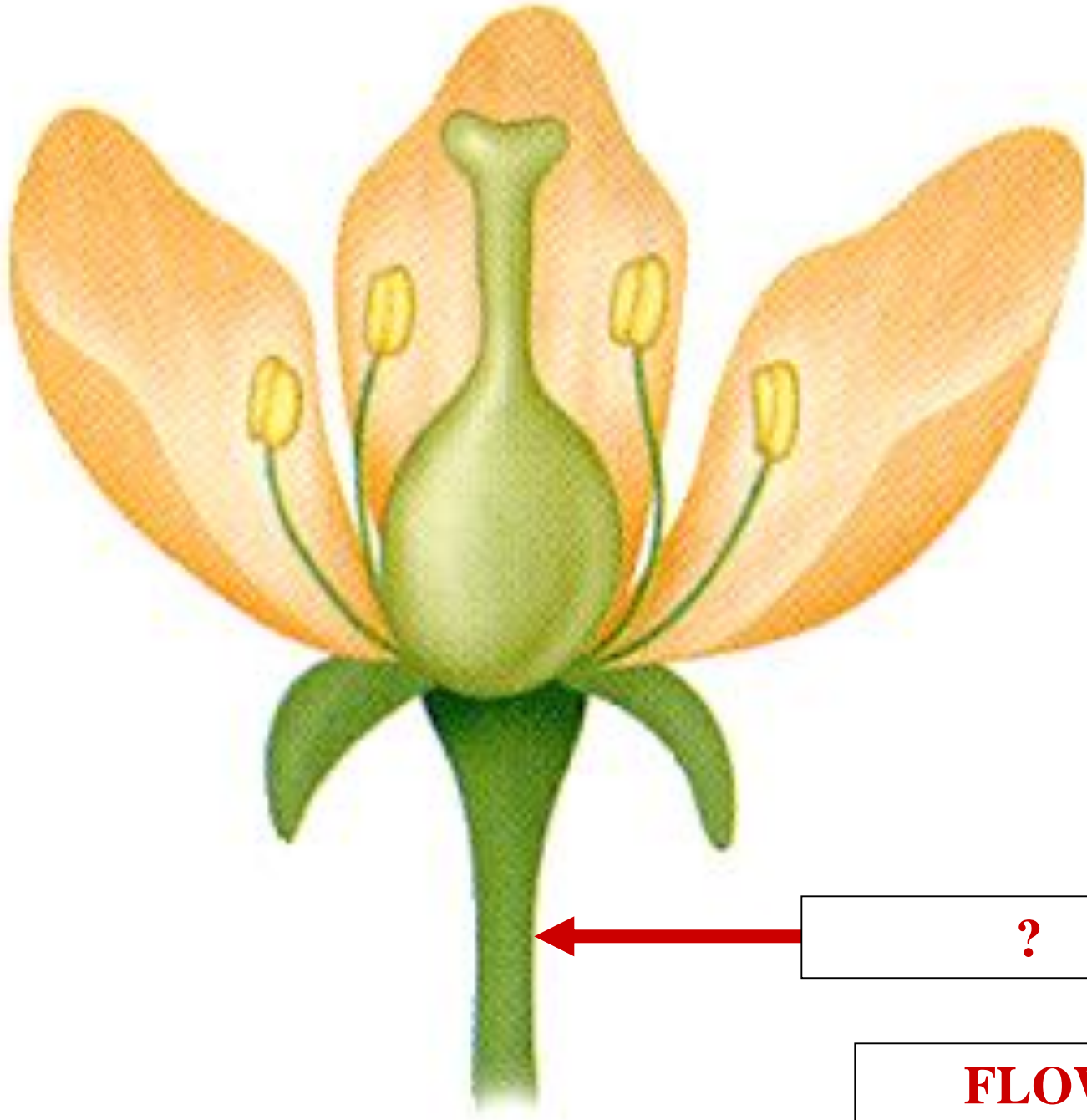




FLOWER MORPHOLOGY

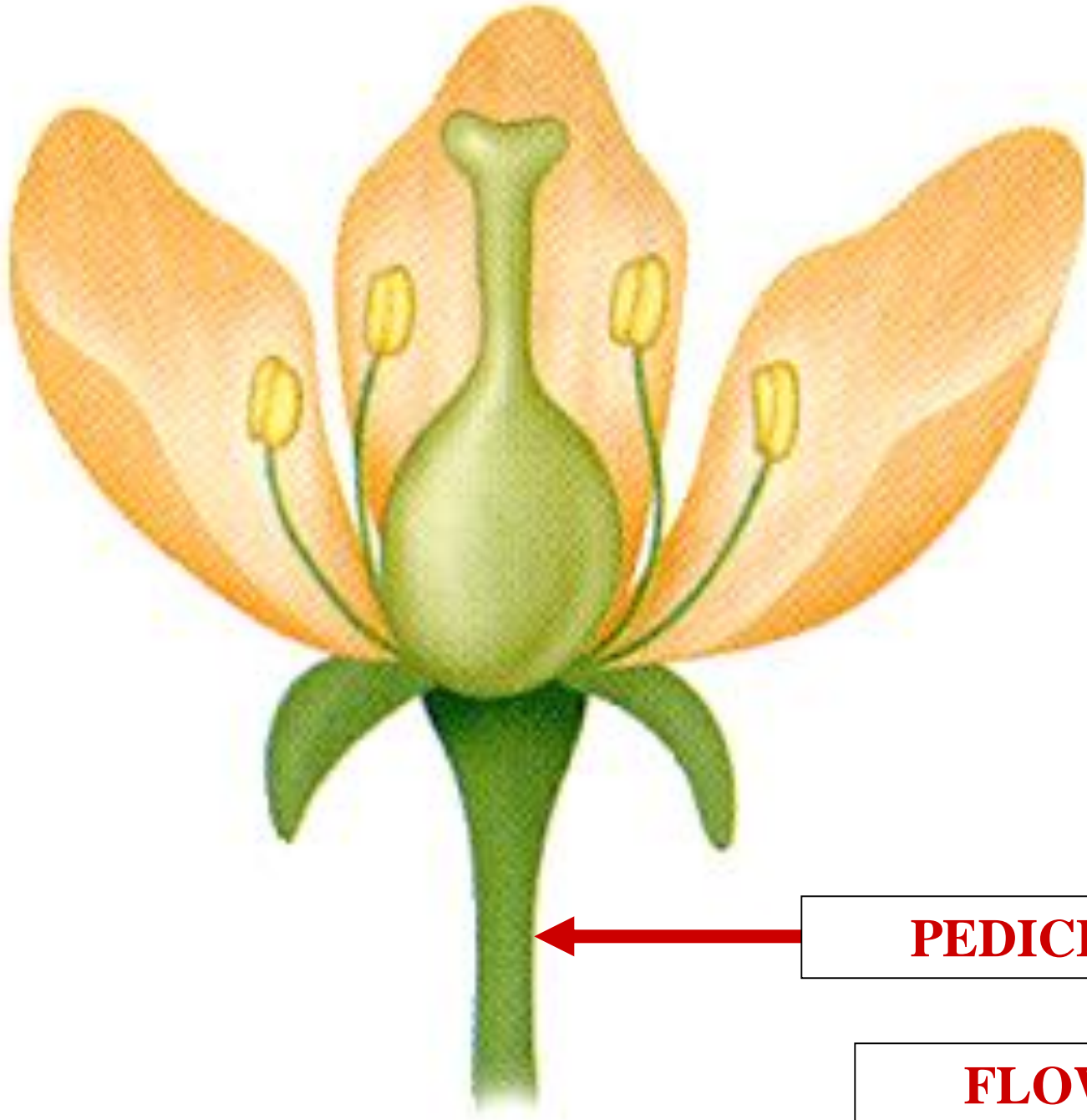


FLOWER



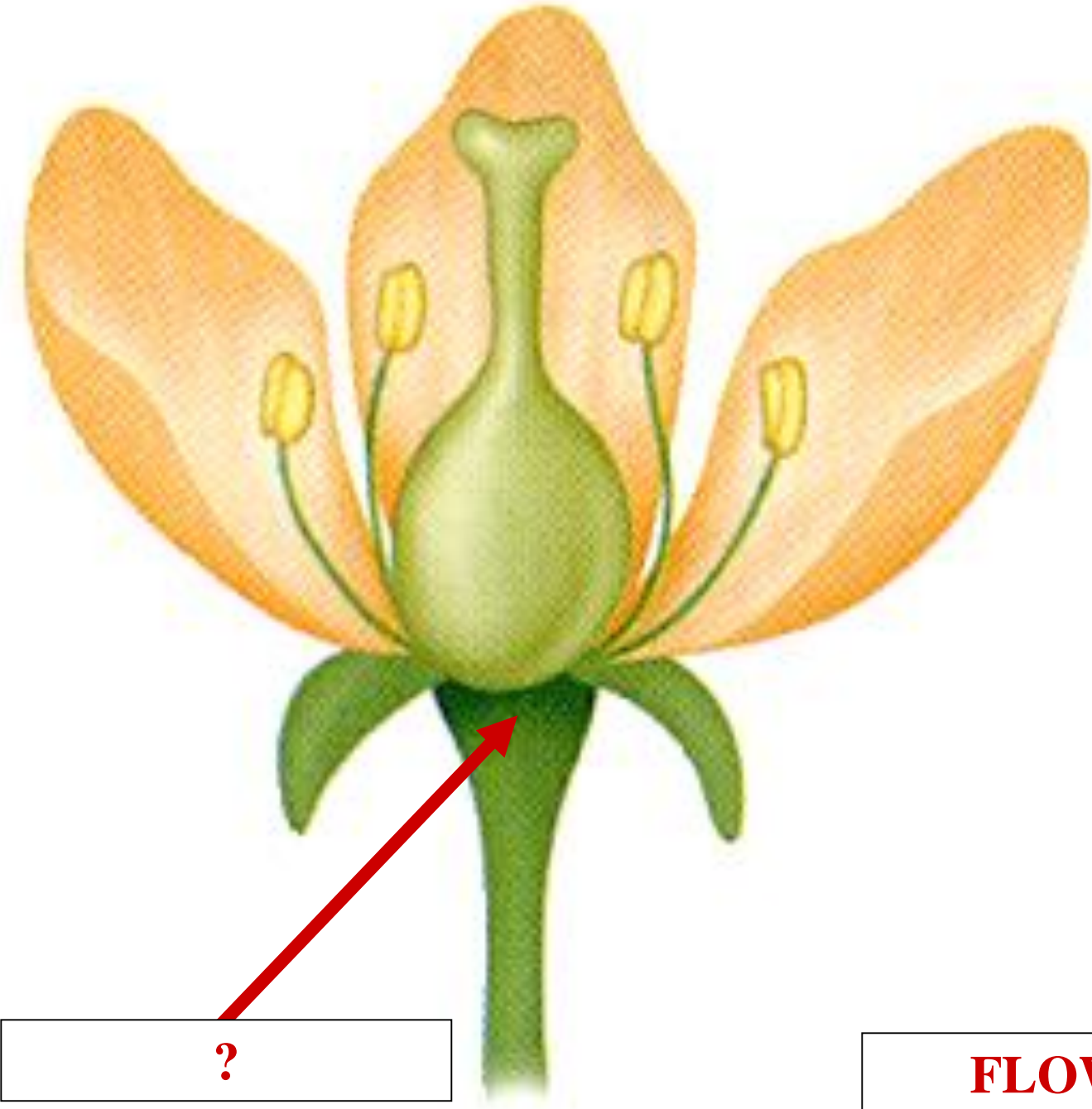
?

FLOWER



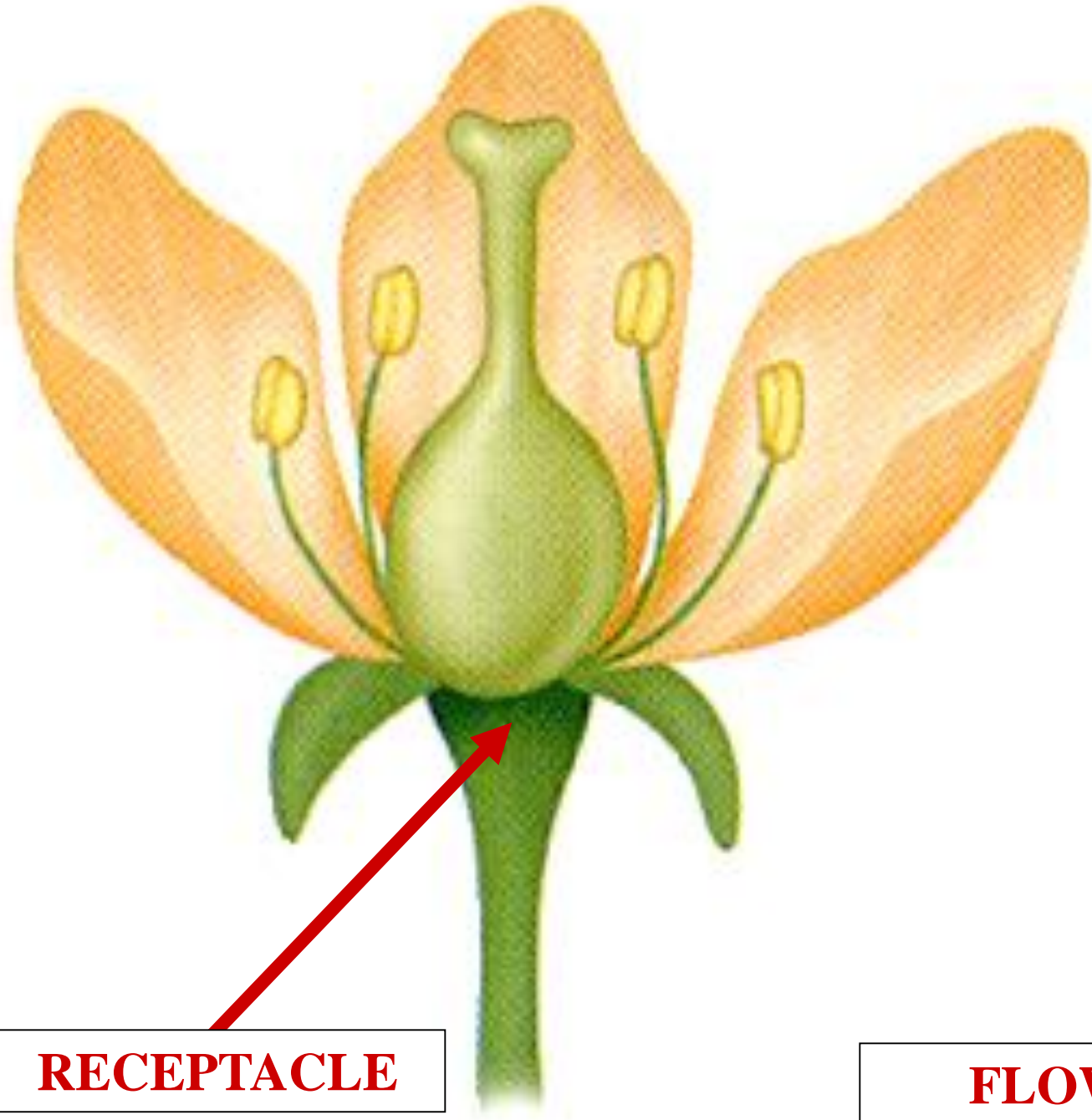
PEDICEL

FLOWER



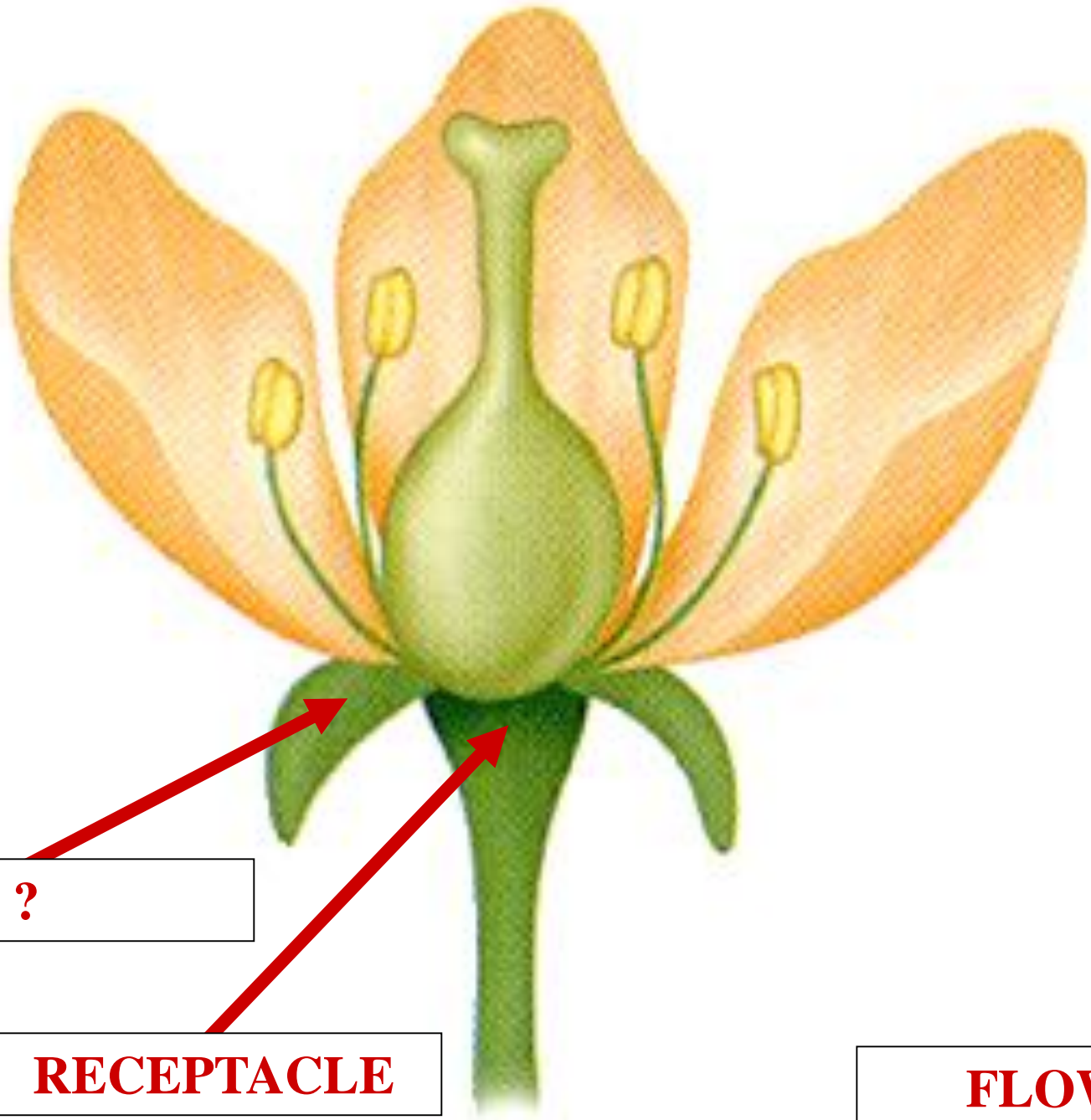
?

FLOWER



RECEPTACLE

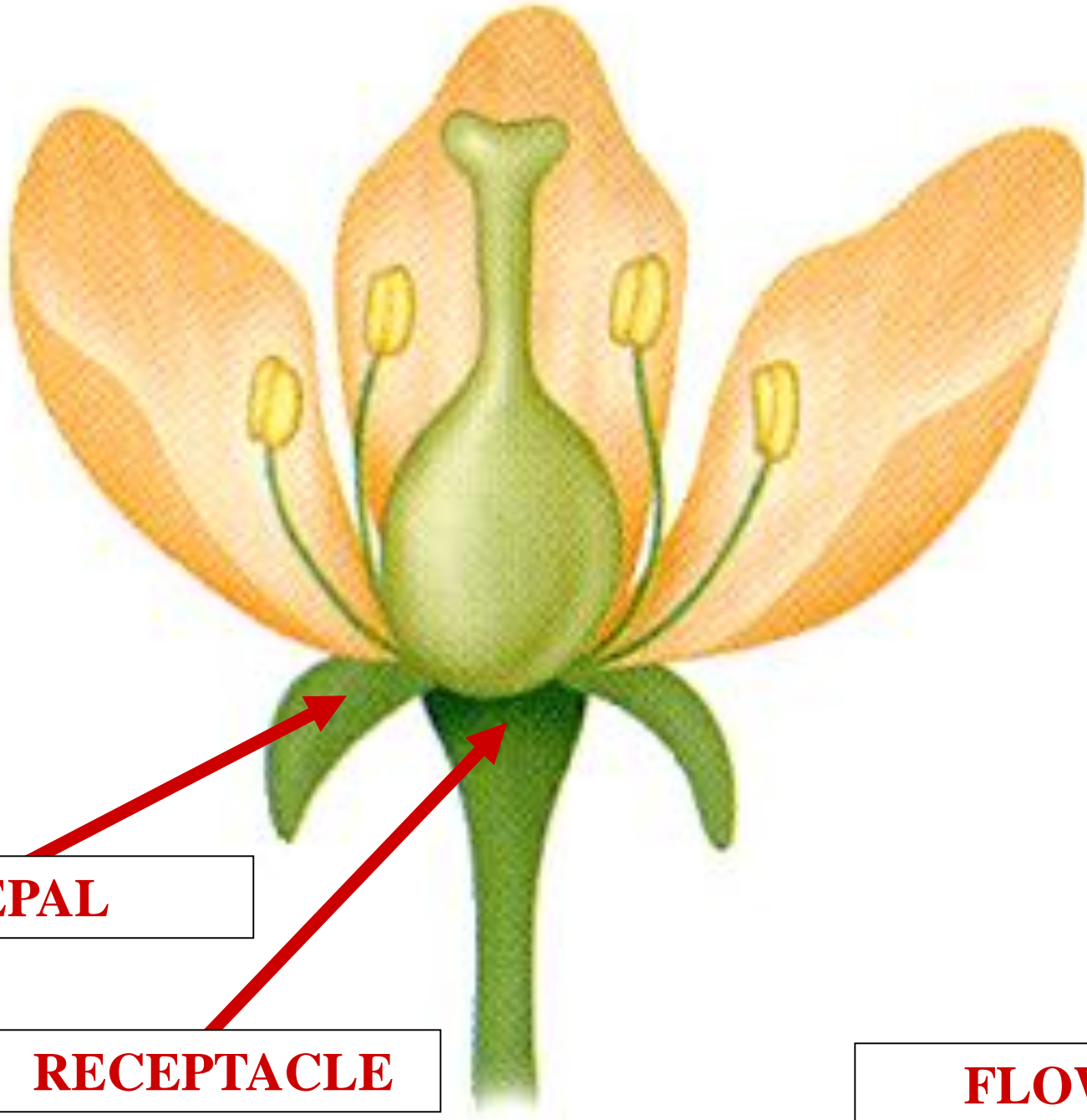
FLOWER



?

RECEPTACLE

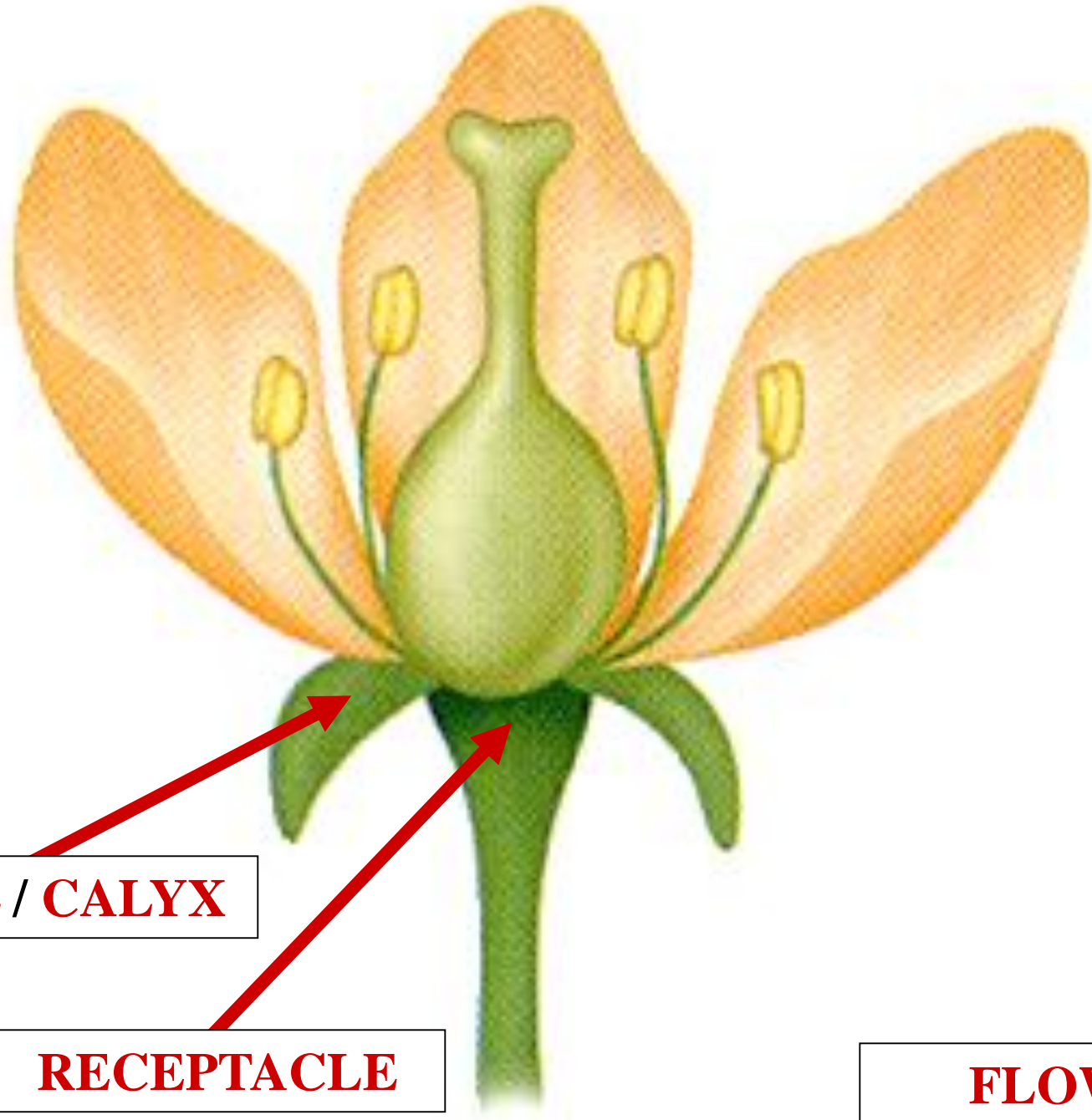
FLOWER



SEPAL

RECEPTACLE

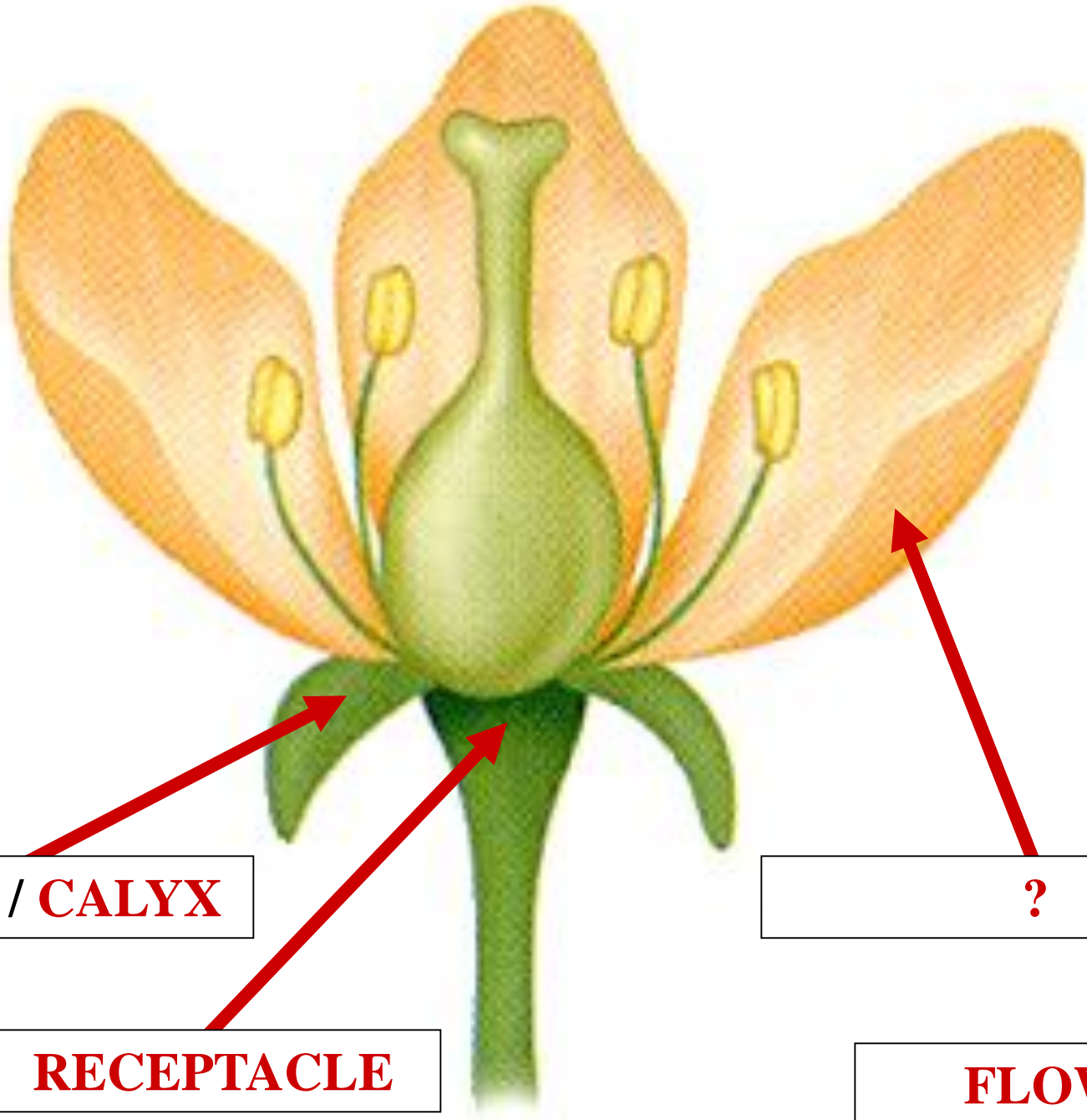
FLOWER



SEPAL / CALYX

RECEPTACLE

FLOWER

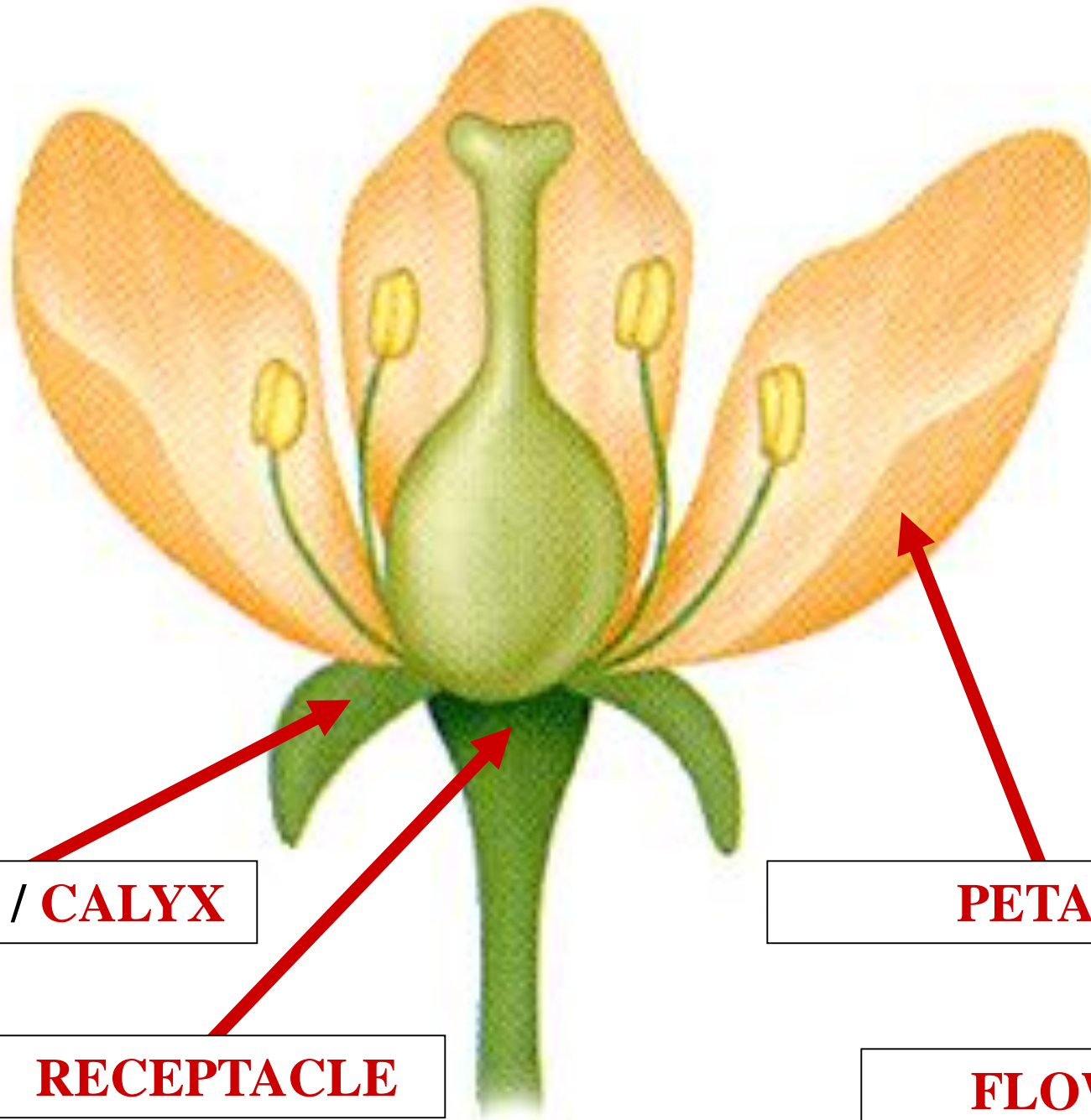


SEPAL / CALYX

RECEPTACLE

?

FLOWER

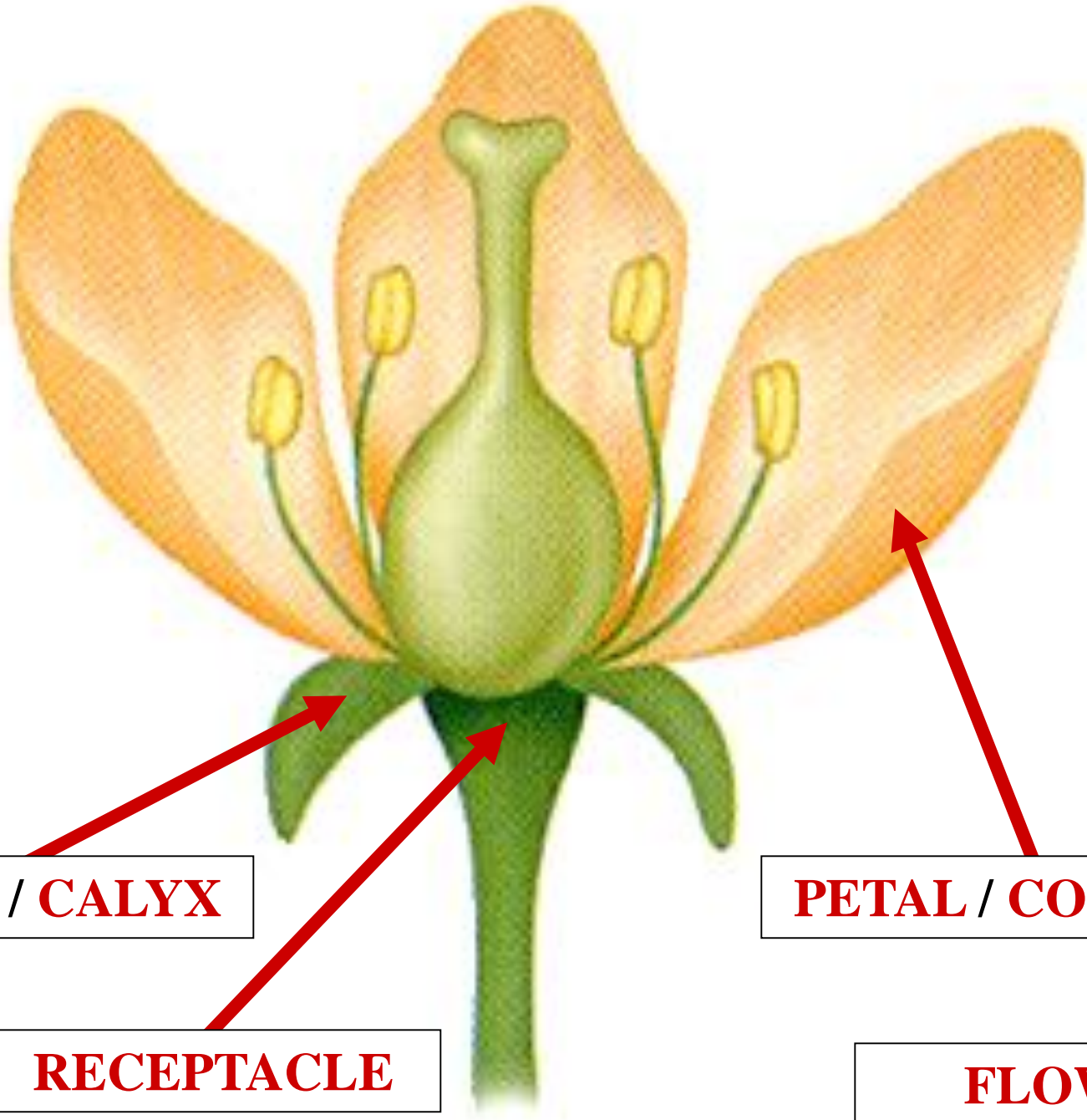


SEPAL / CALYX

RECEPTACLE

PETAL

FLOWER

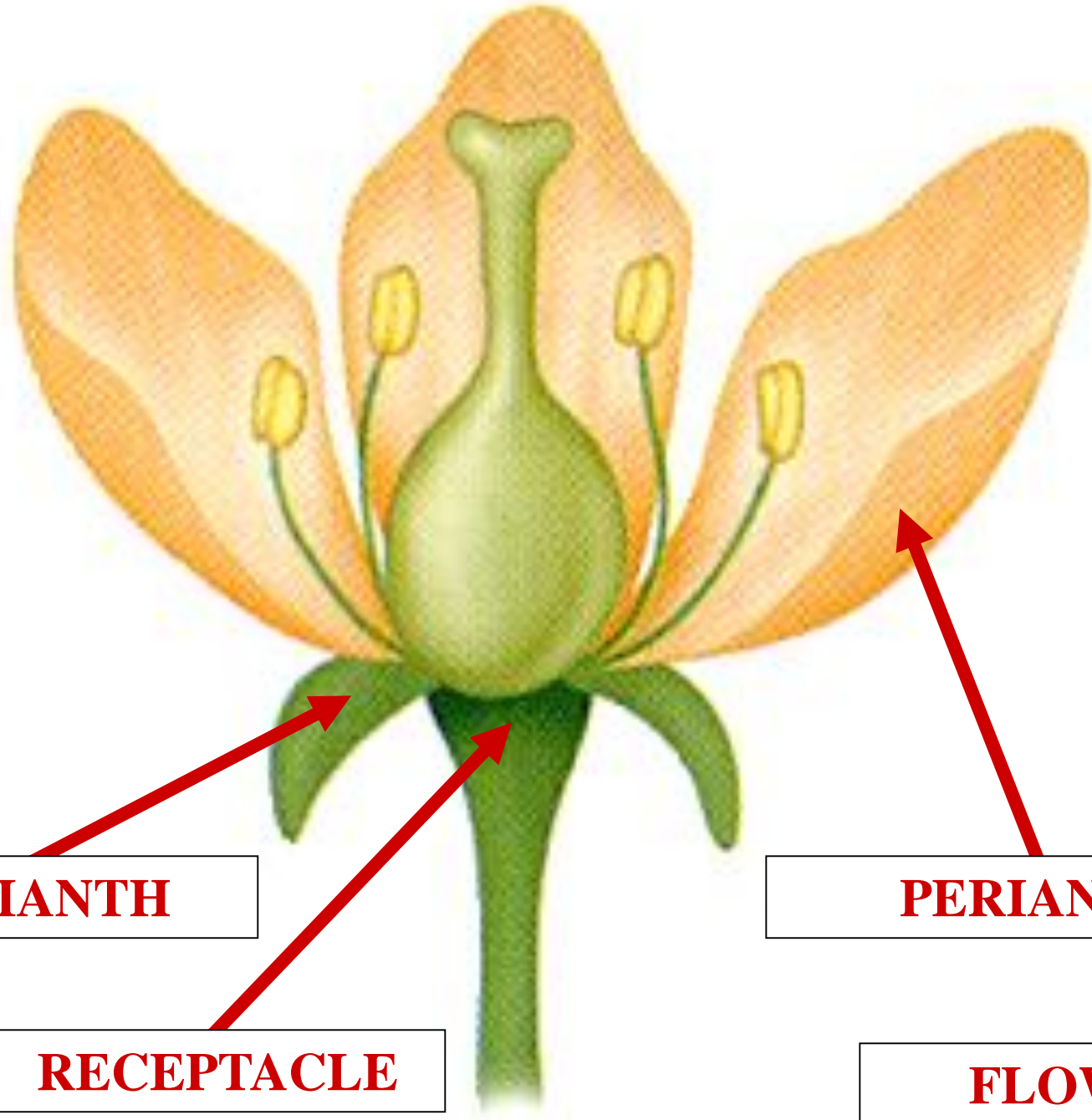


SEPAL / CALYX

RECEPTACLE

PETAL / COROLLA

FLOWER

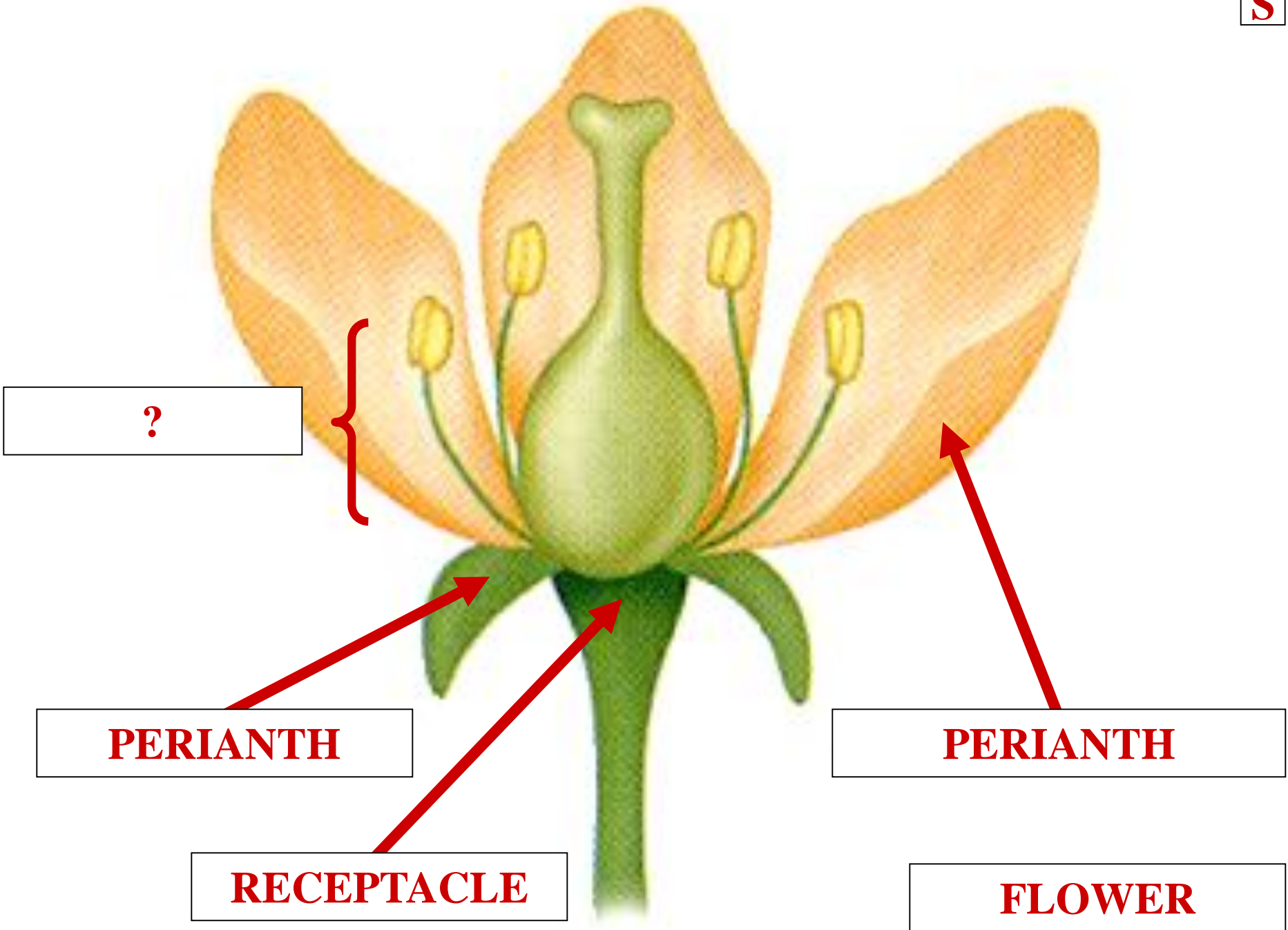


PERIANTH

RECEPTACLE

PERIANTH

FLOWER



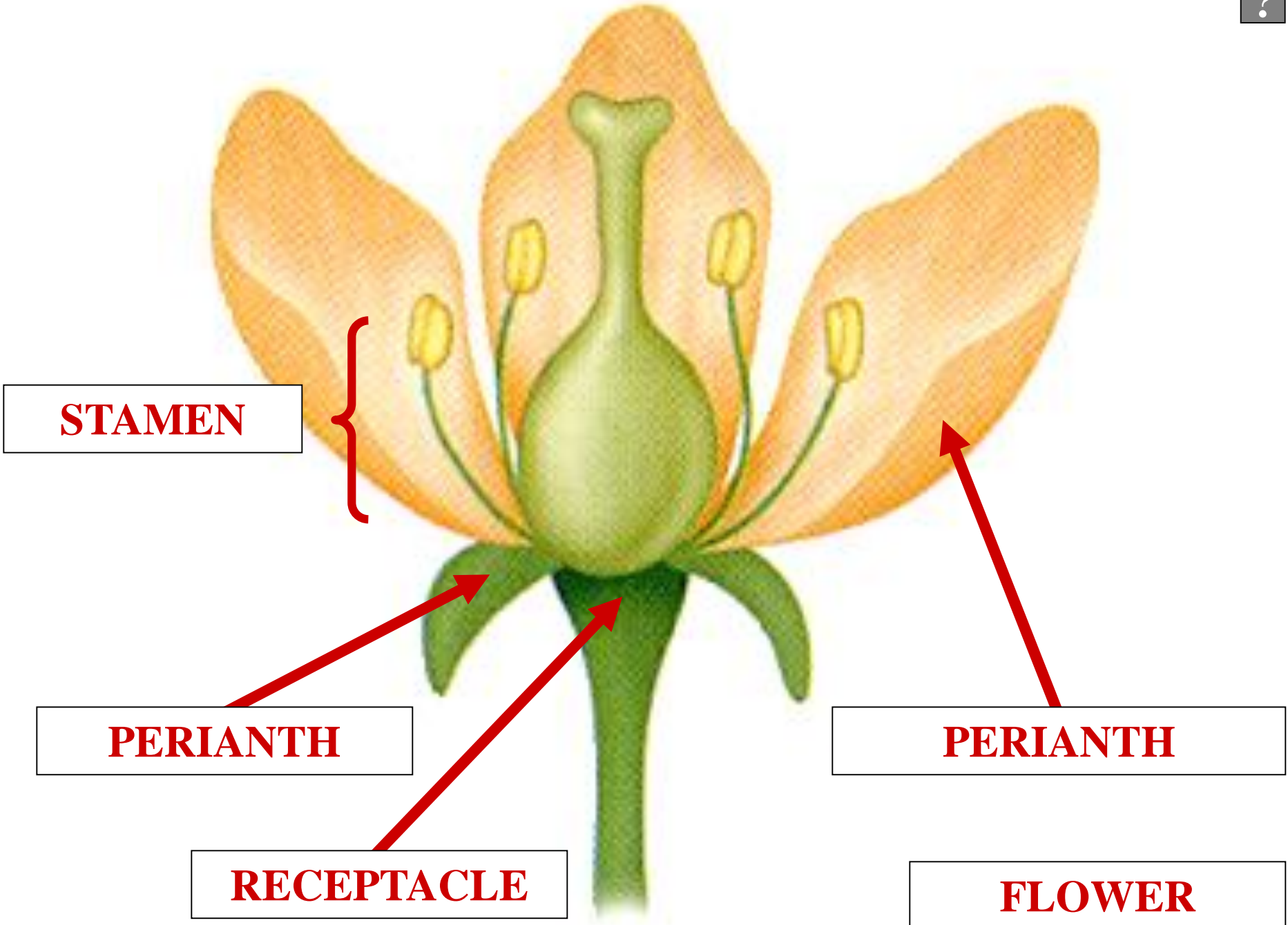
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PERIANTH

RECEPTACLE

PERIANTH

FLOWER



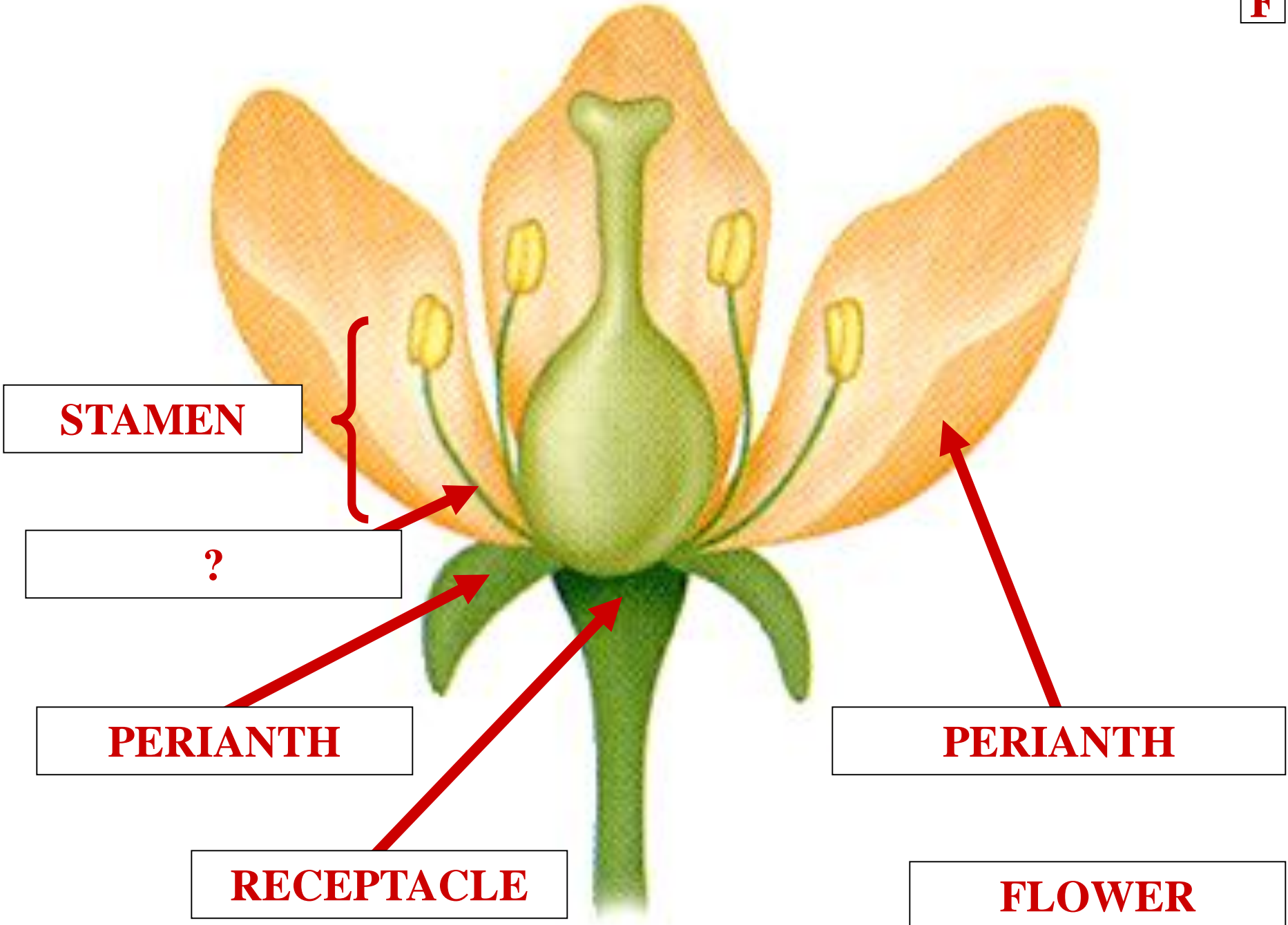
STAMEN

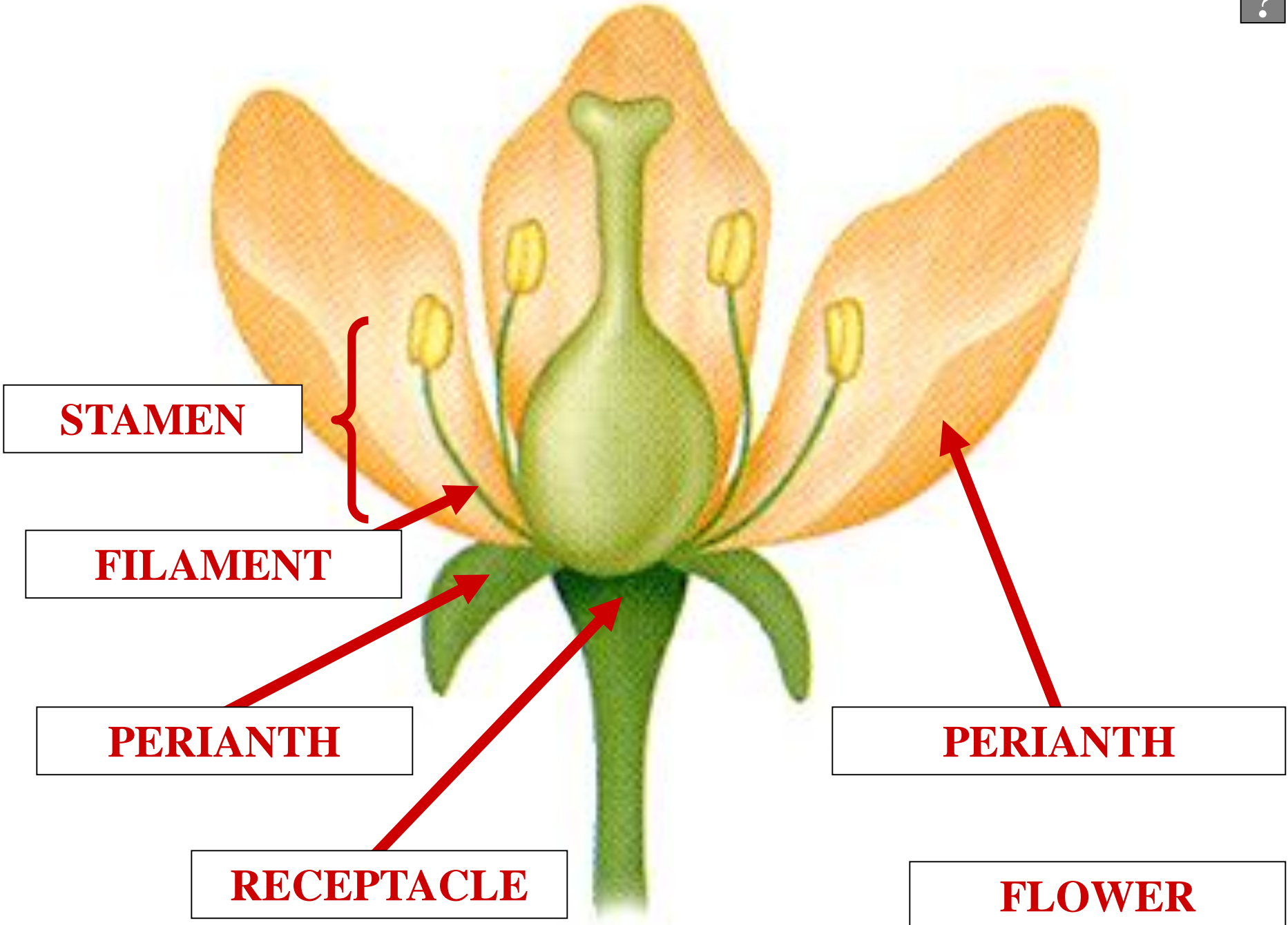
PERIANTH

RECEPTACLE

PERIANTH

FLOWER





STAMEN

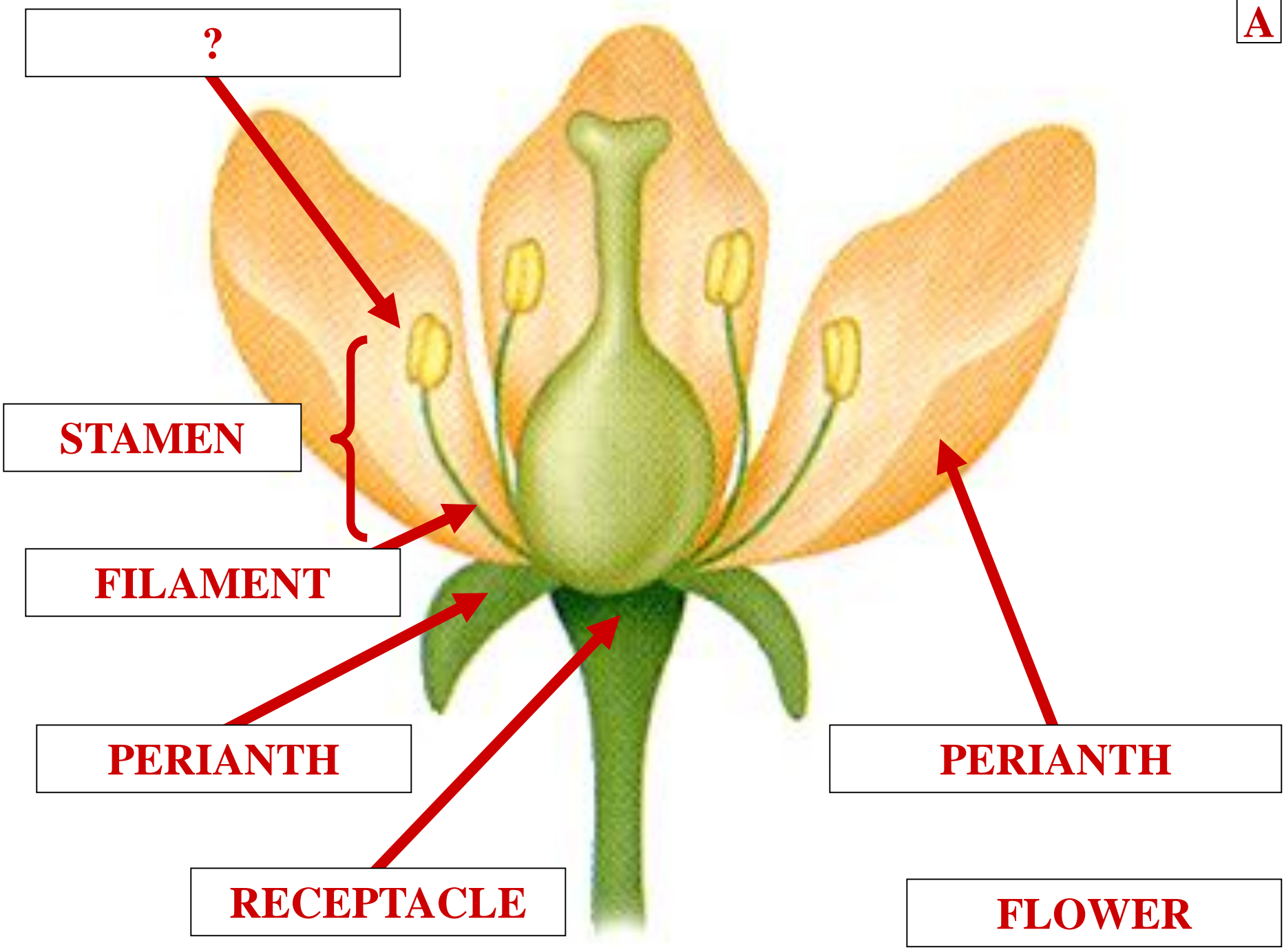
FILAMENT

PERIANTH

RECEPTACLE

PERIANTH

FLOWER



ANTHER

STAMEN

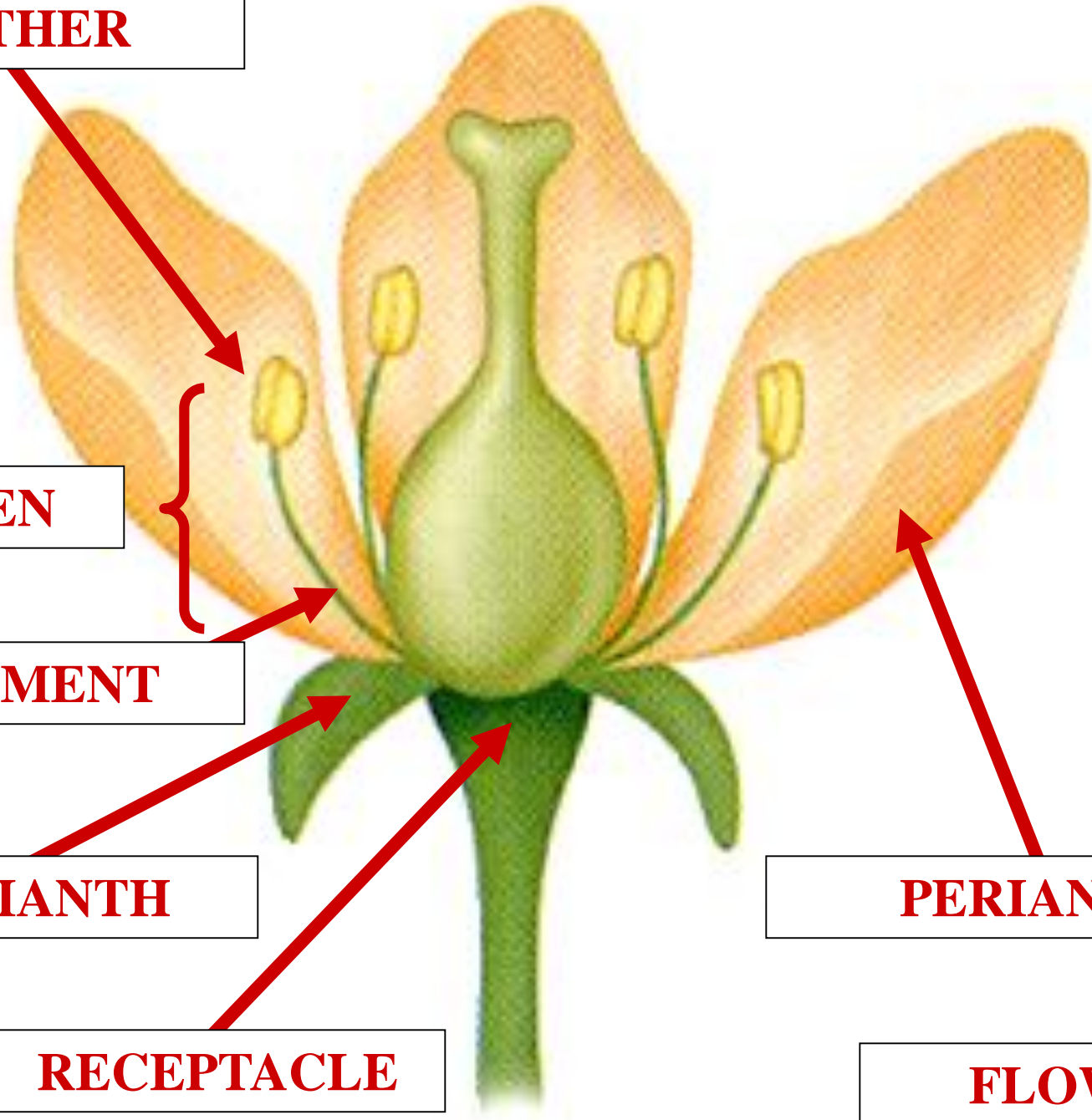
FILAMENT

PERIANTH

RECEPTACLE

PERIANTH

FLOWER



ANTHER

?

STAMEN

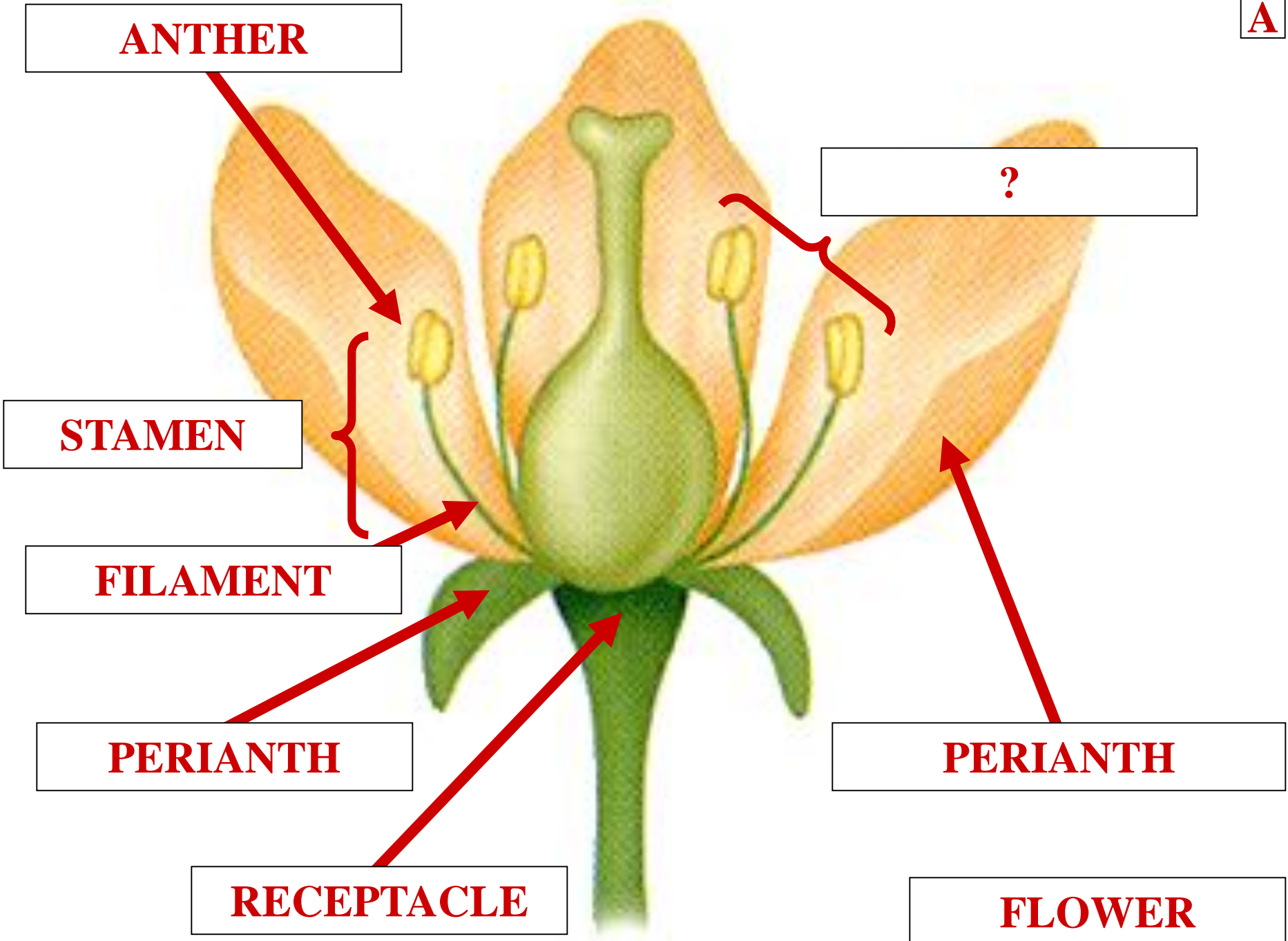
FILAMENT

PERIANTH

RECEPTACLE

PERIANTH

FLOWER



ANTHER

ANDROECIUM

STAMEN

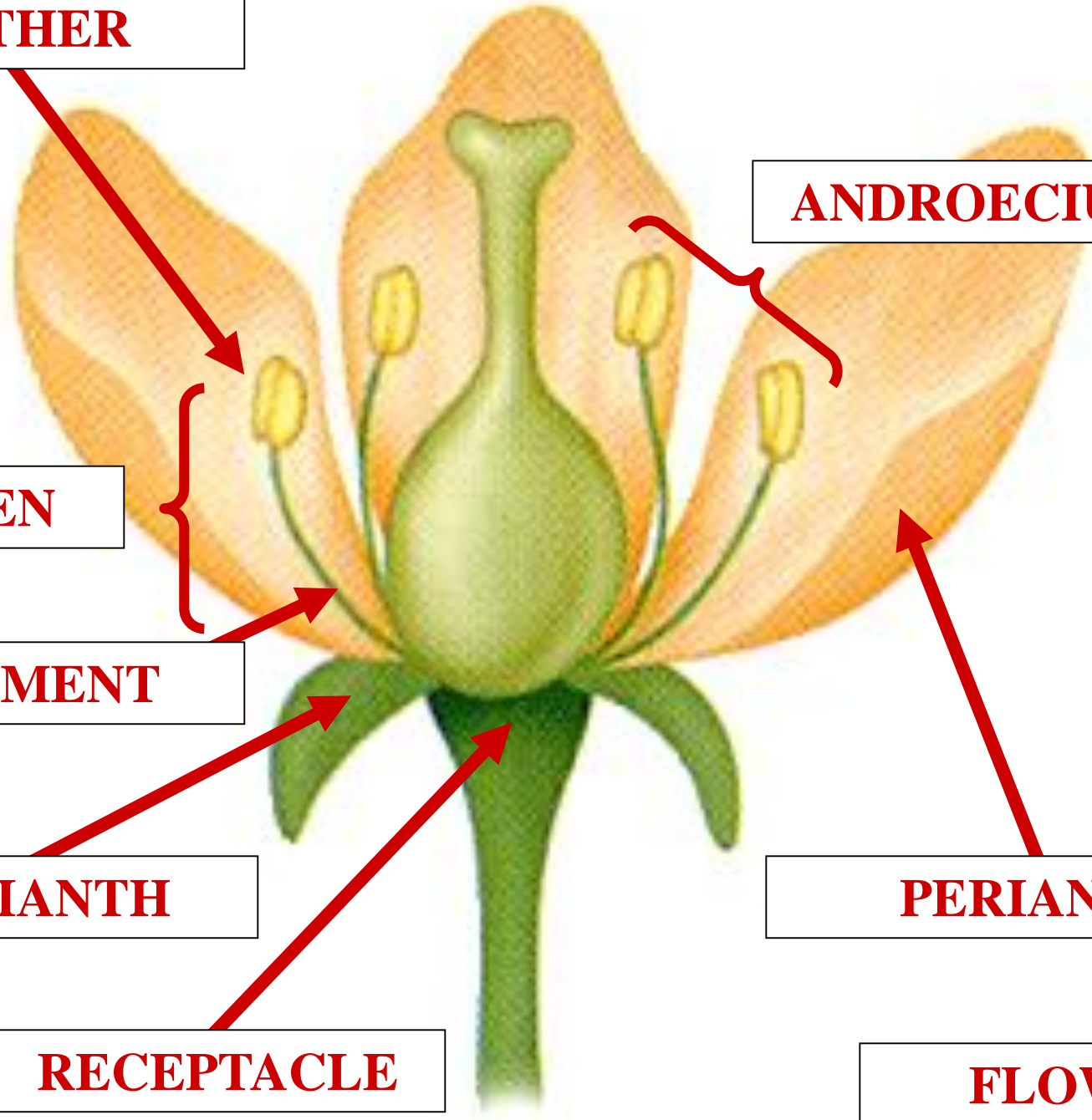
FILAMENT

PERIANTH

RECEPTACLE

PERIANTH

FLOWER



ANTHER



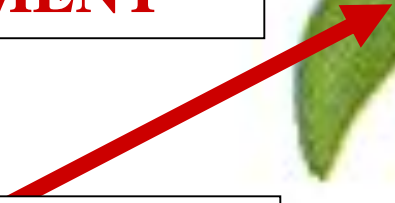
STAMEN



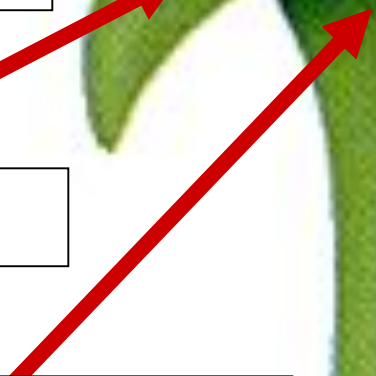
FILAMENT



PERIANTH



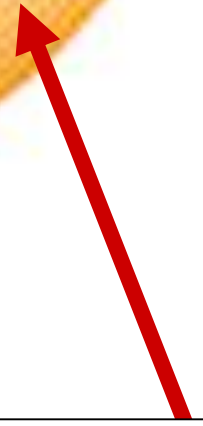
RECEPTACLE



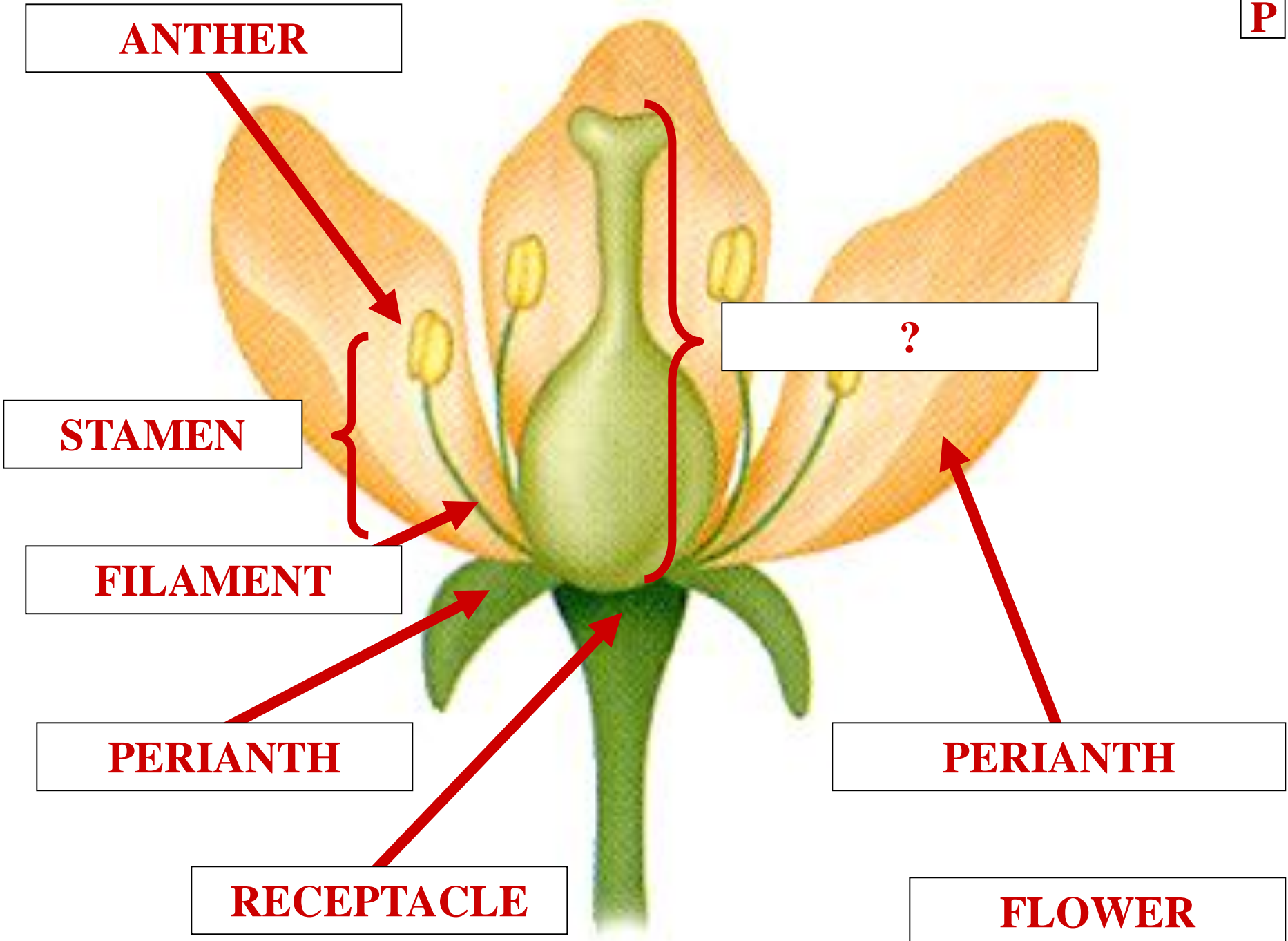
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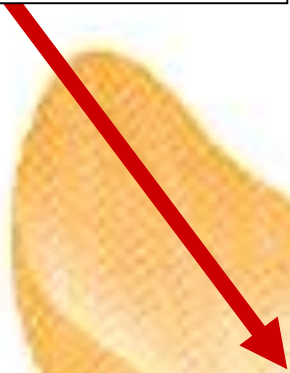
PERIANTH



FLOWER



ANTHER



STAMEN



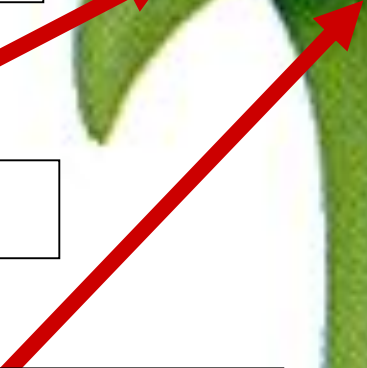
FILAMENT



PERIANTH



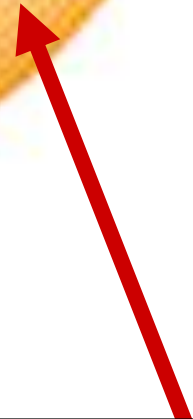
RECEPTACLE



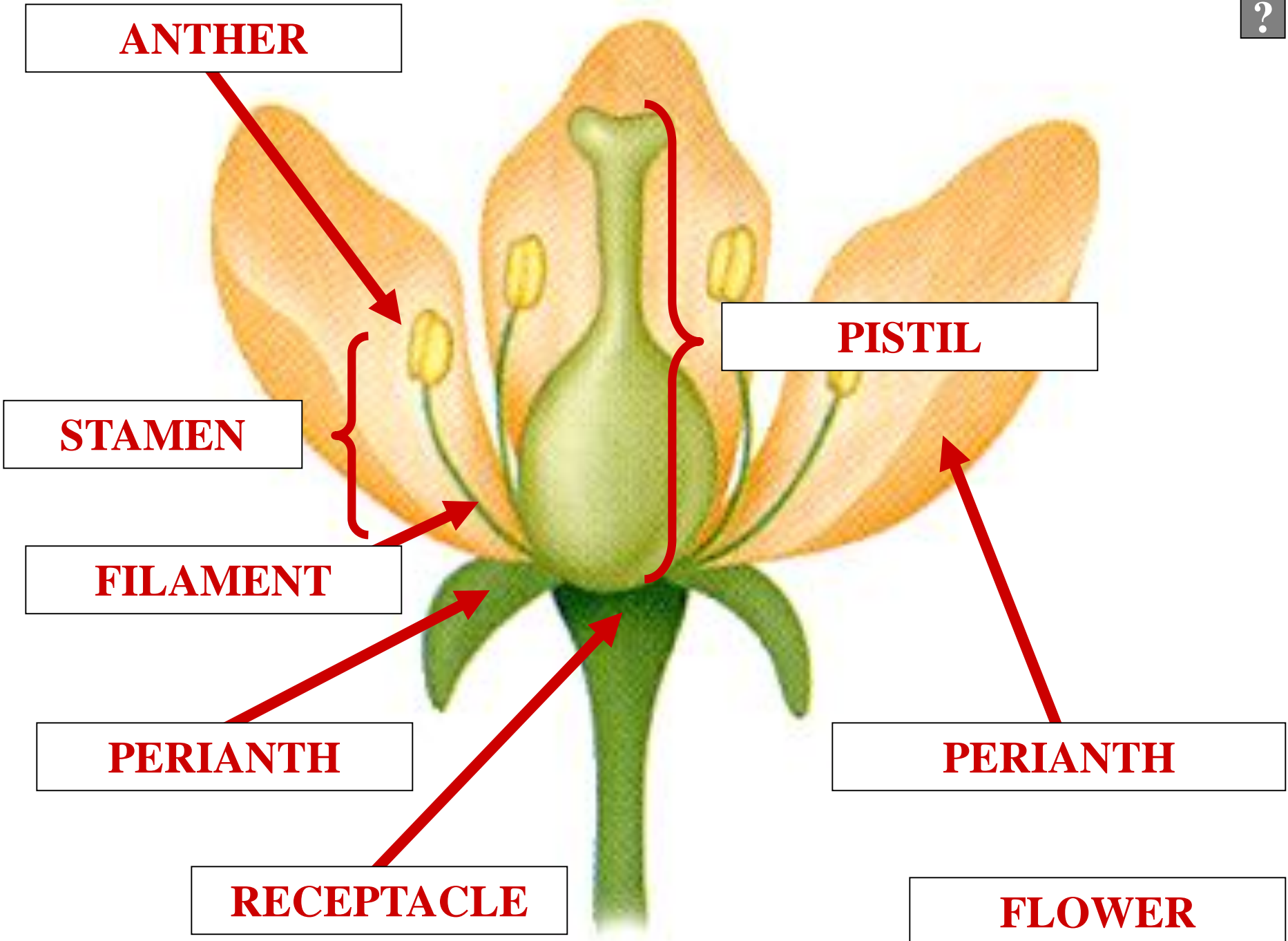
PISTIL



PERIANTH



FLOWER



ANTHER

?

STAMEN

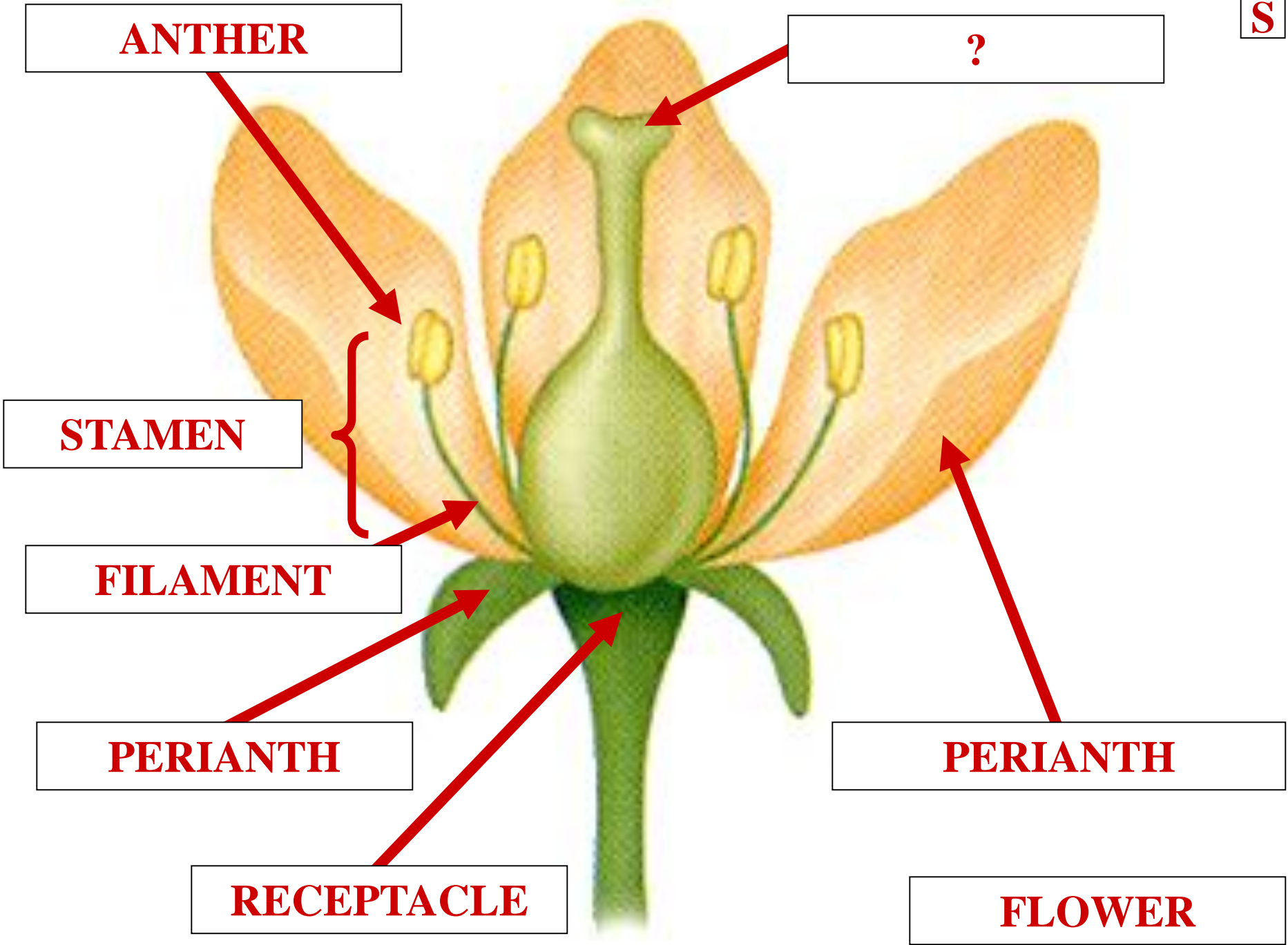
FILAMENT

PERIANTH

RECEPTACLE

PERIANTH

FLOWER



ANTHER

STIGMA

STAMEN

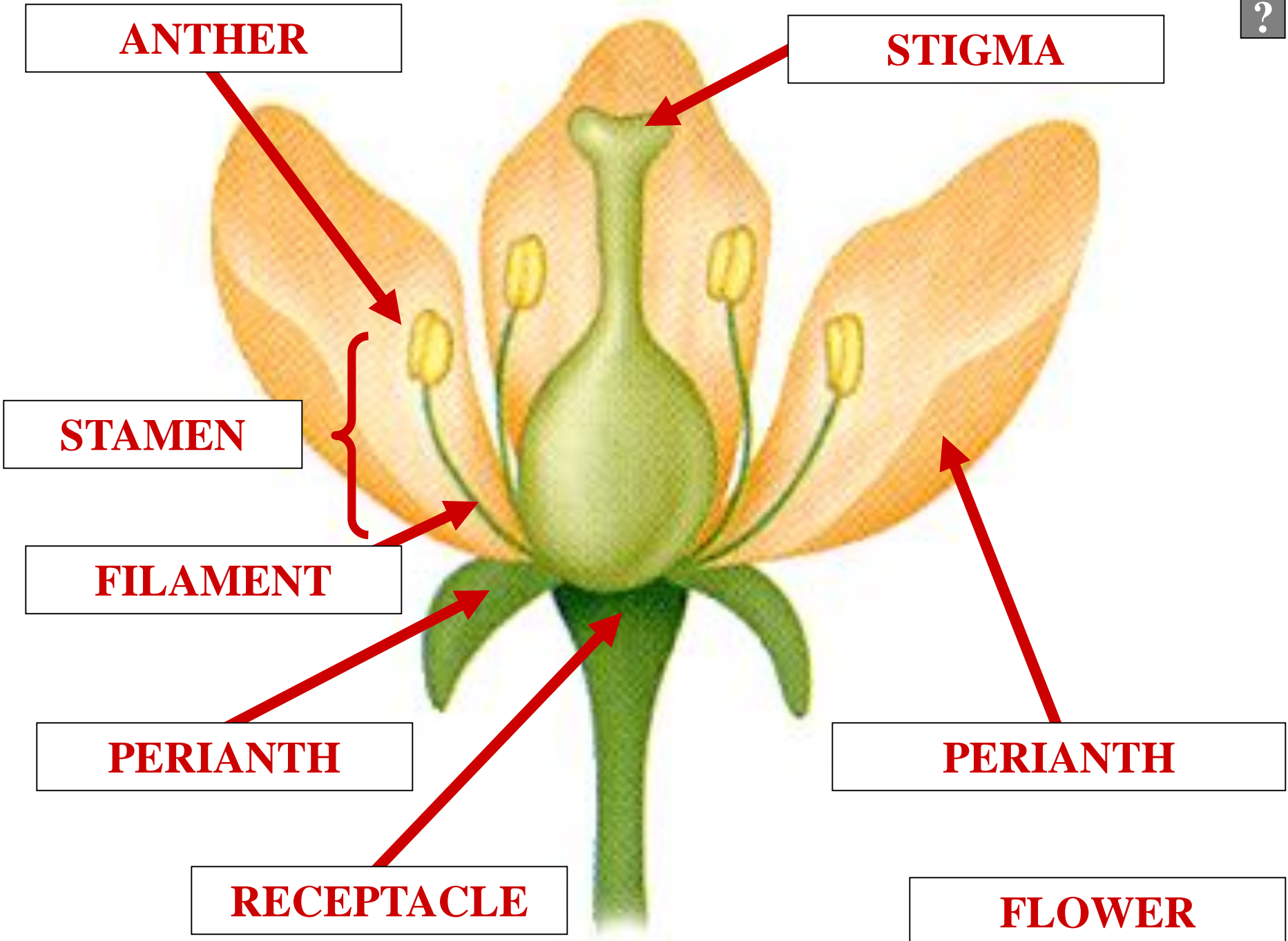
FILAMENT

PERIANTH

RECEPTACLE

PERIANTH

FLOWER



ANTHER

STIGMA

?

STAMEN

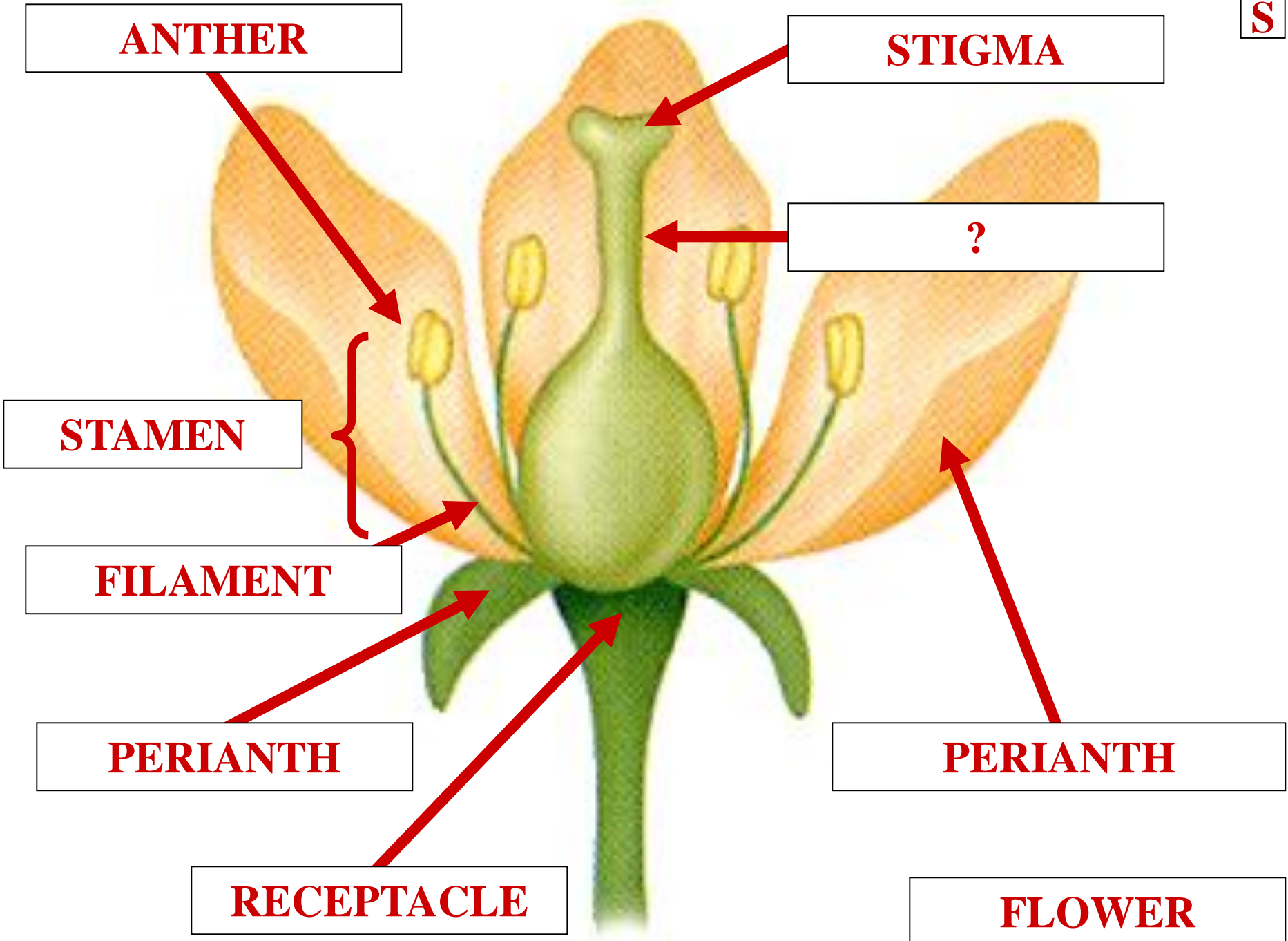
FILAMENT

PERIANTH

RECEPTACLE

PERIANTH

FLOWER



ANTHER

STIGMA

STYLE

STAMEN

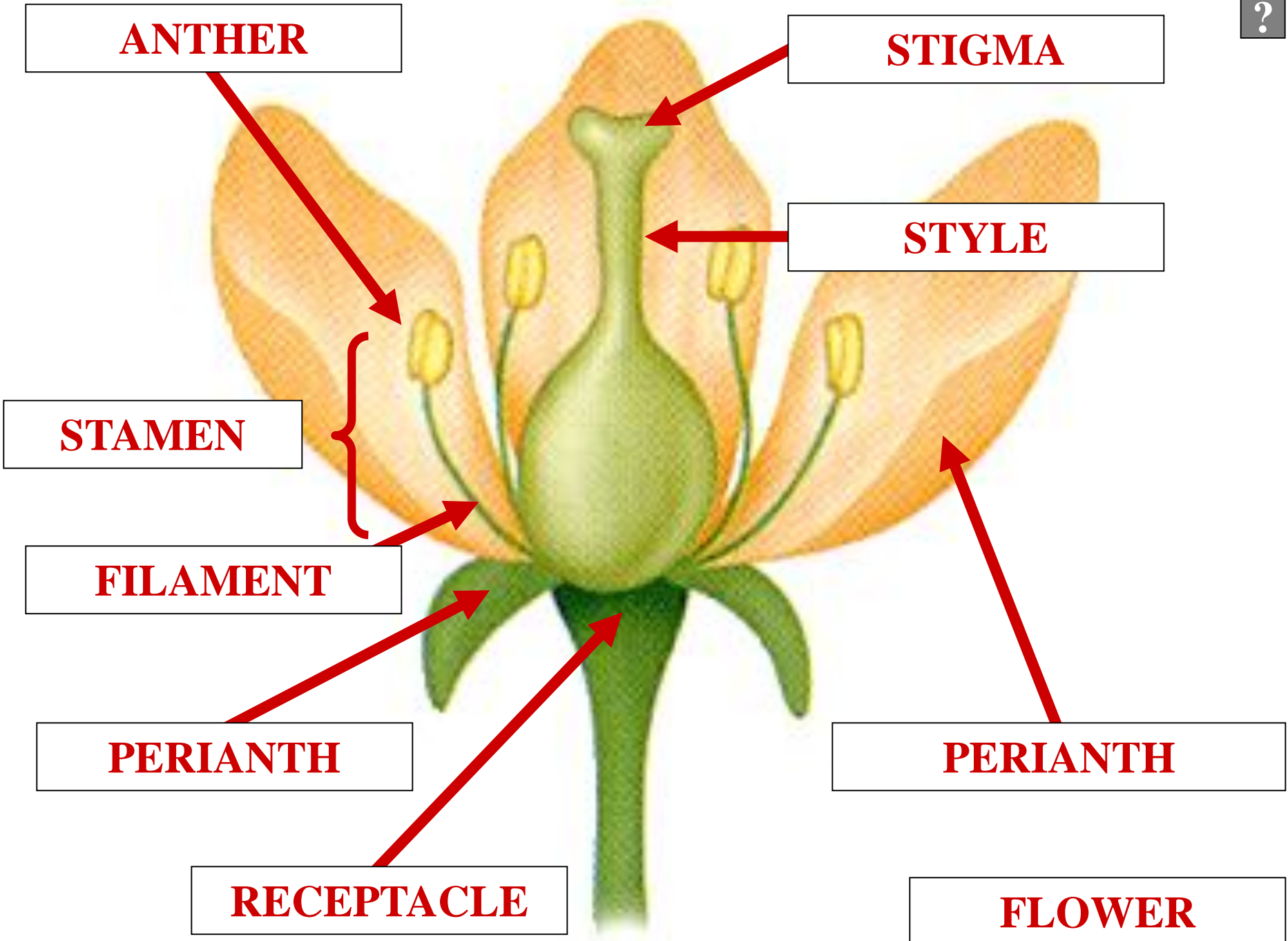
FILAMENT

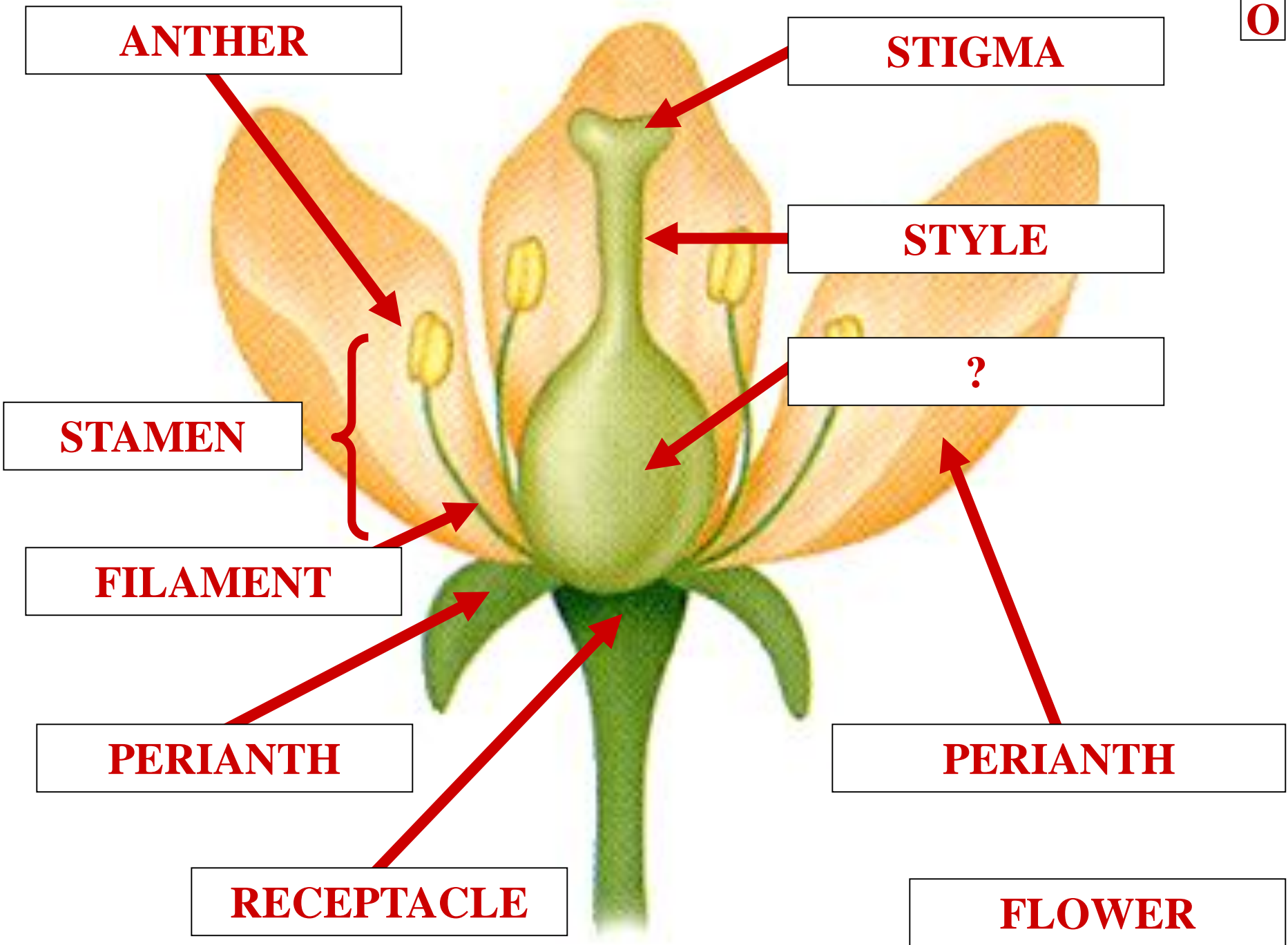
PERIANTH

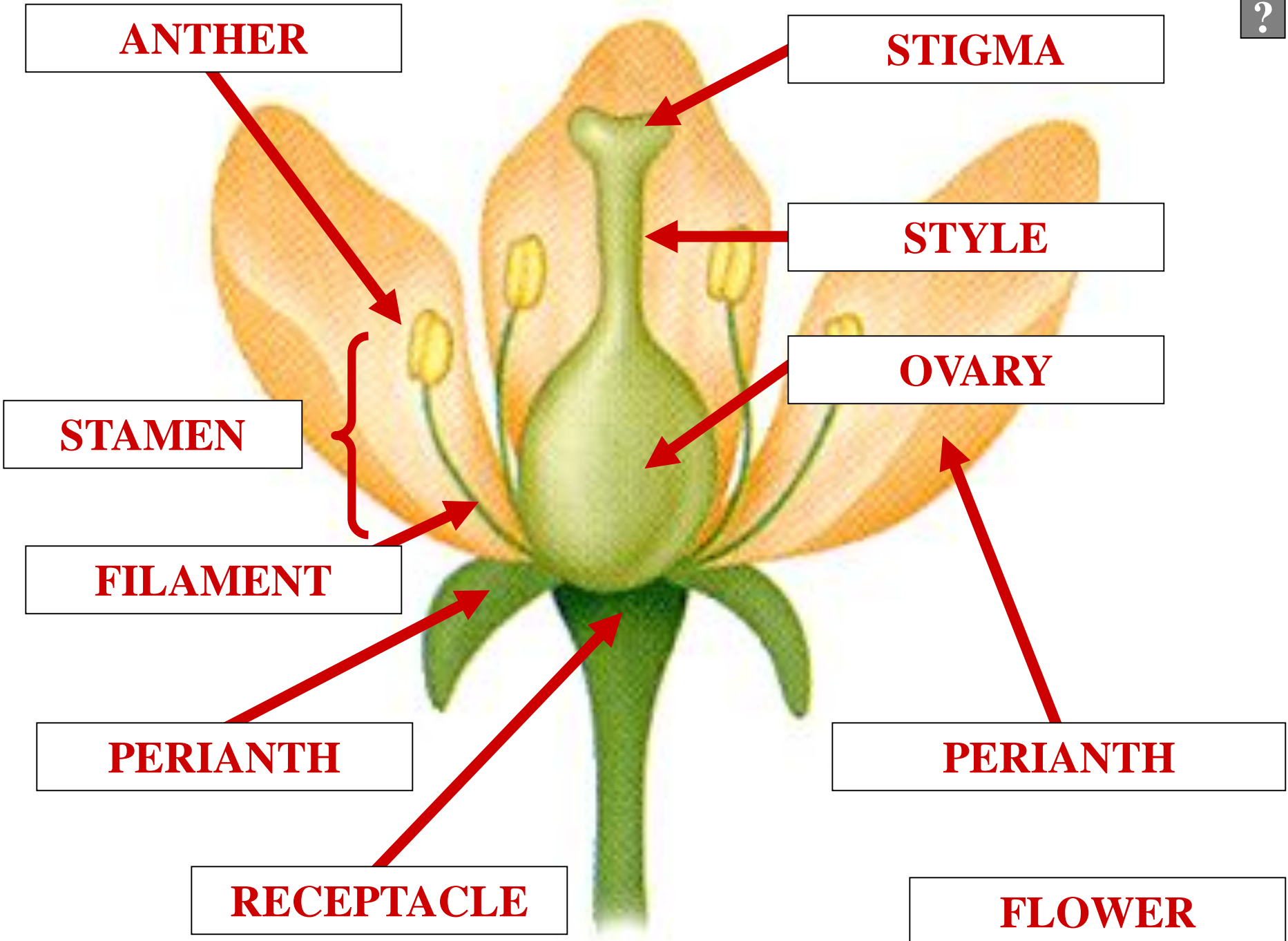
RECEPTACLE

PERIANTH

FLOWER







ANTHER



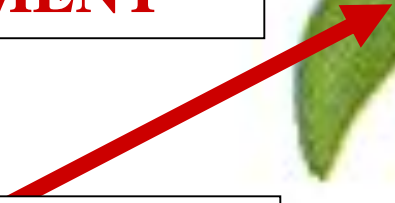
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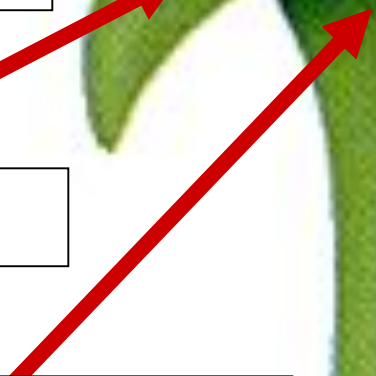
FILAMENT



PERIANTH



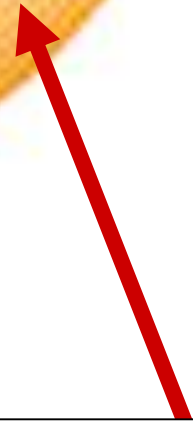
RECEPTACLE



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PERIANTH



FLOWER





ANTHER

GYNOECIUM

STAMEN

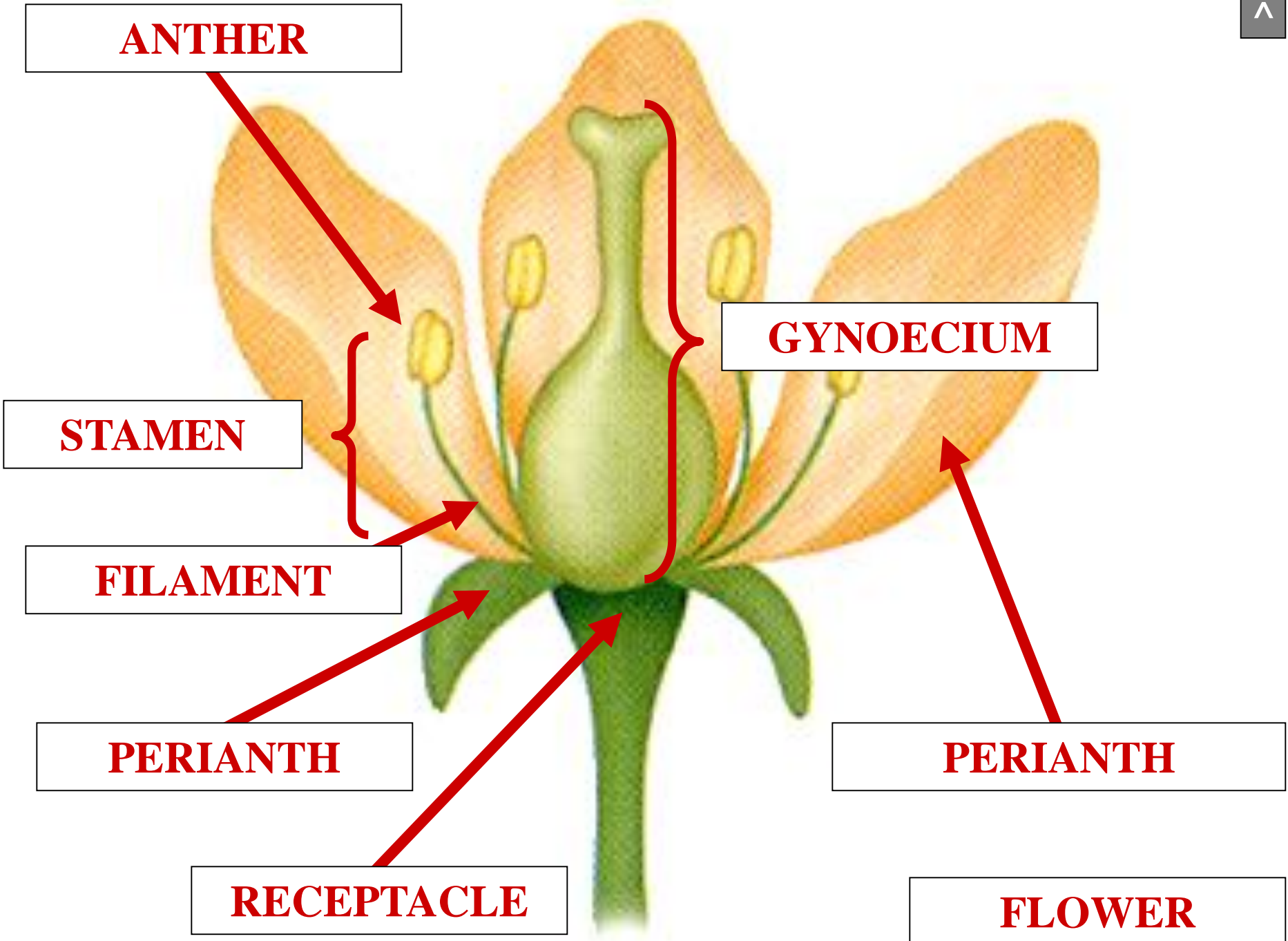
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PERIANTH

RECEPTACLE

PERIANTH

FLOWER

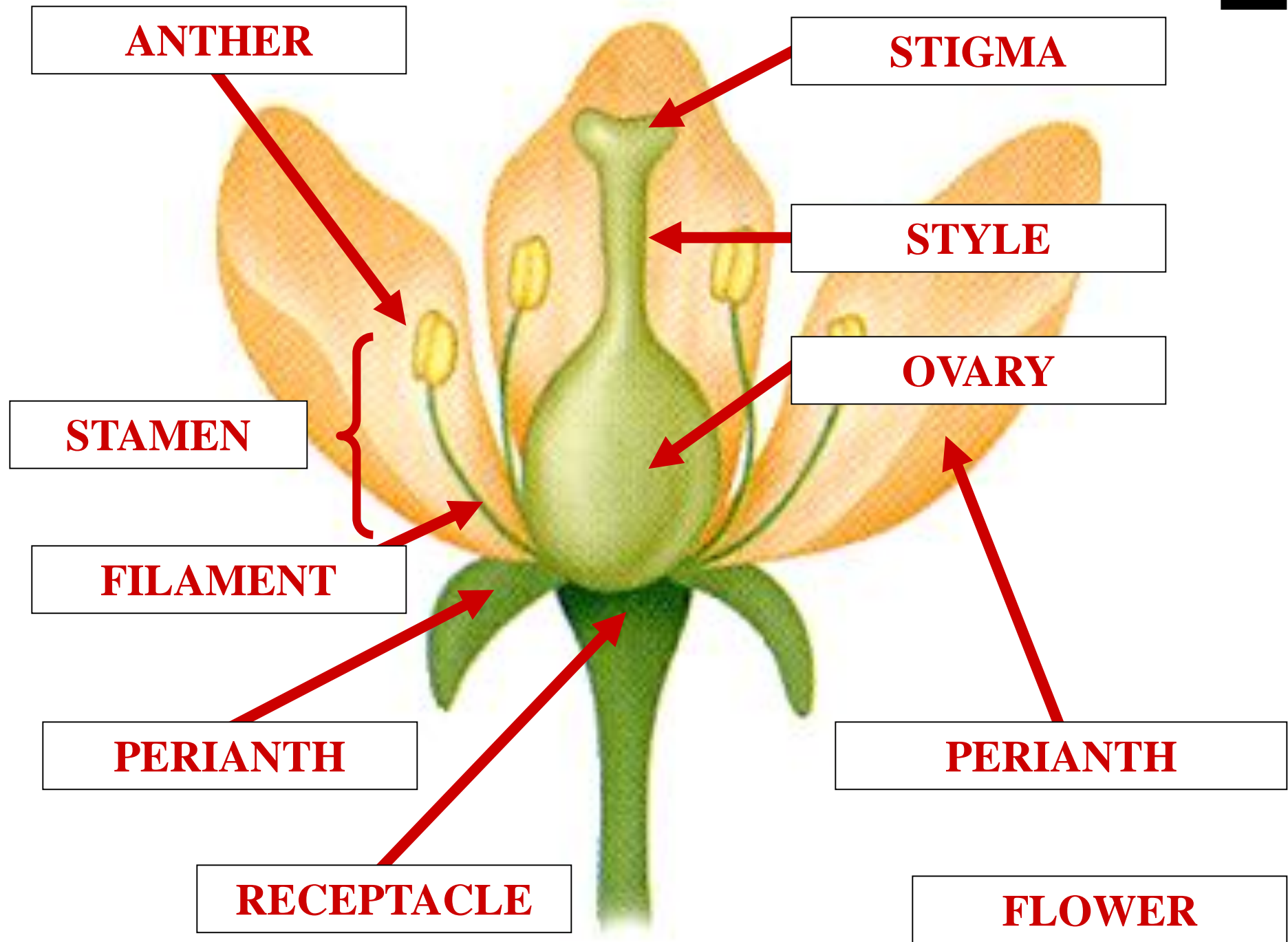




FLOWER ANATOMY



OVARY ANATOMY





ANTHER

STIGMA

STYLE

OVARY

STAMEN

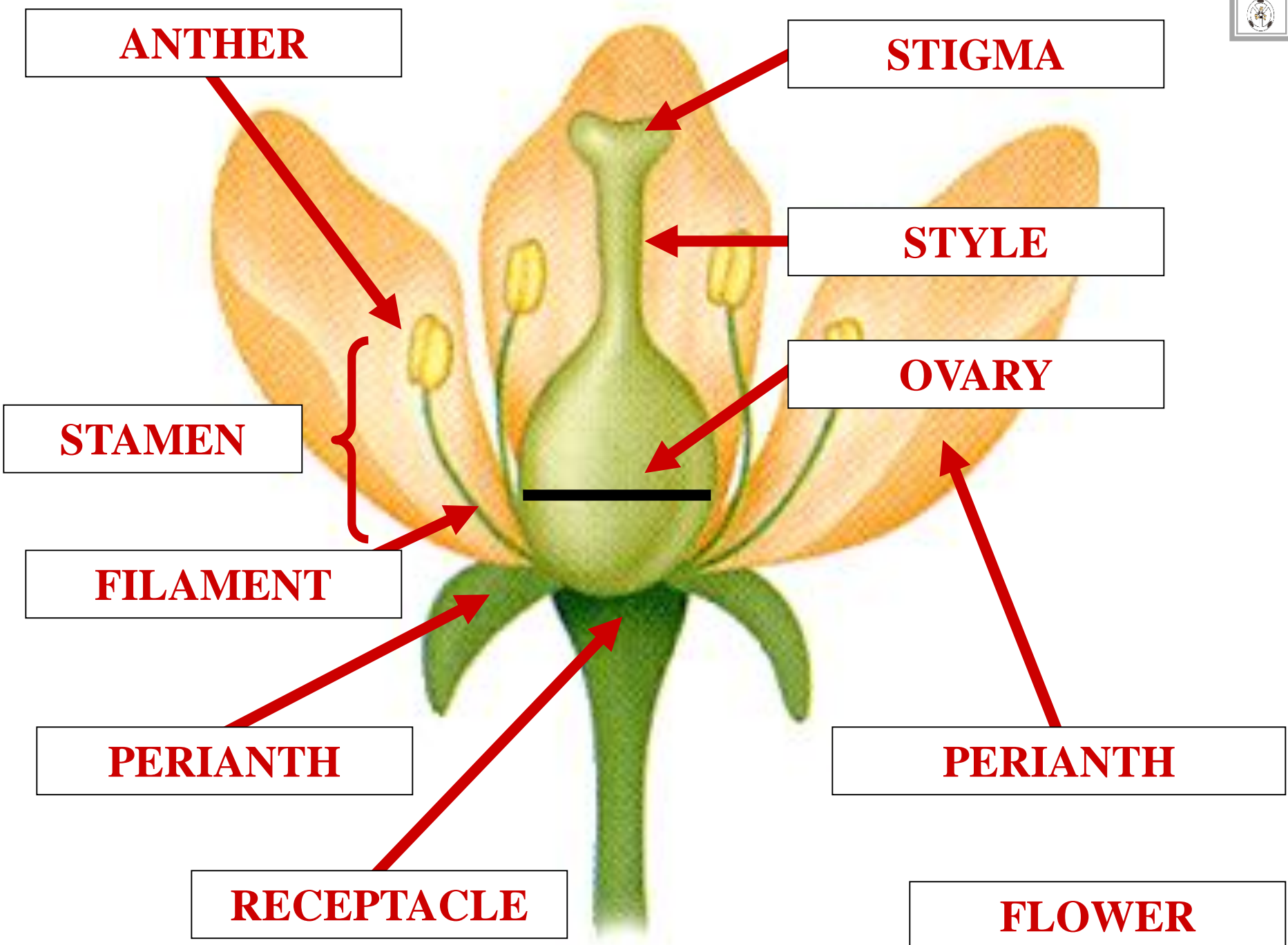
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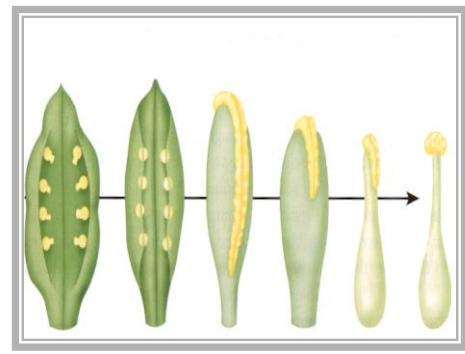
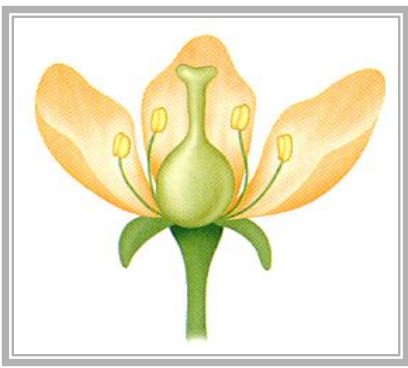
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RECEPTACLE

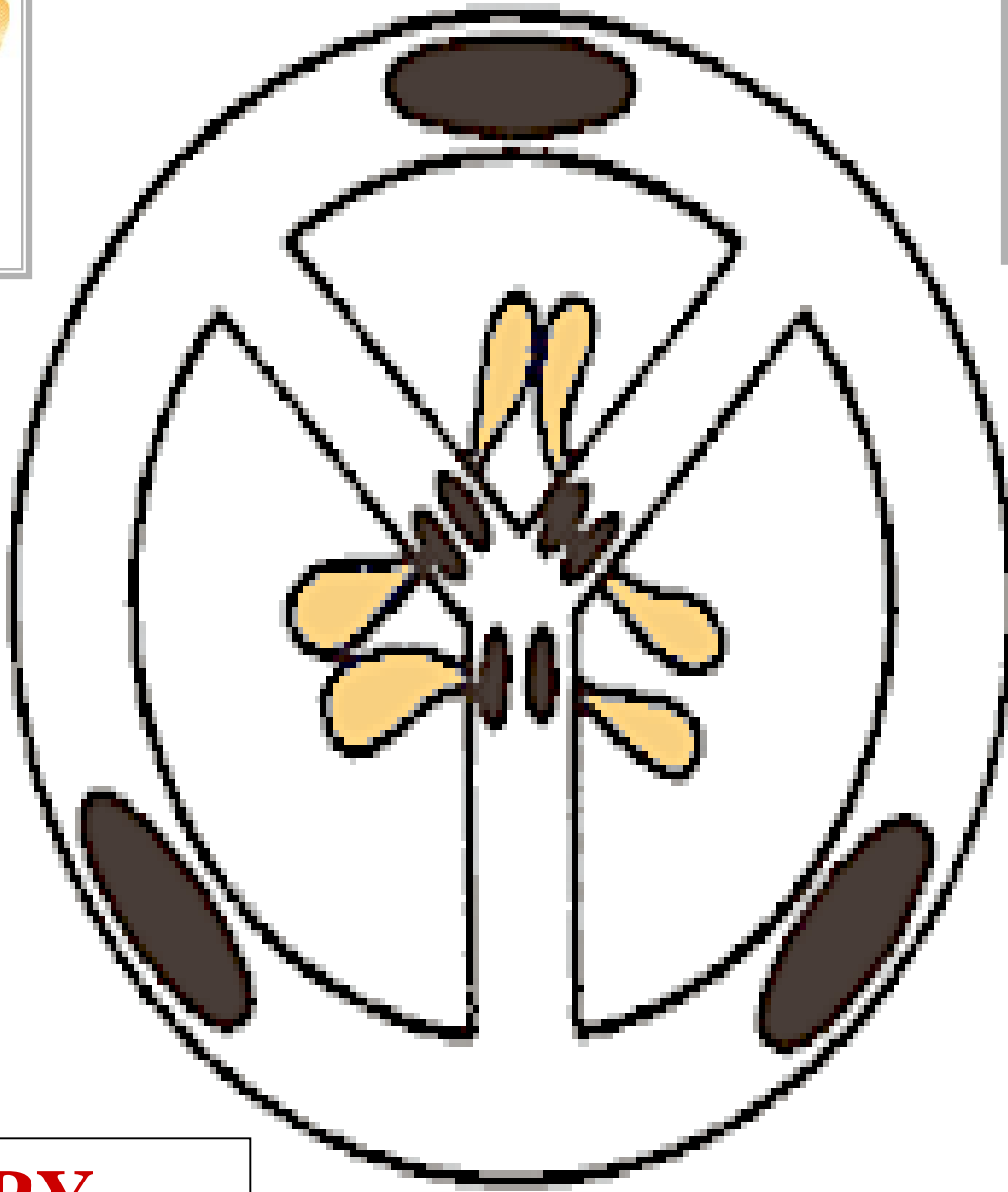
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FLOWER



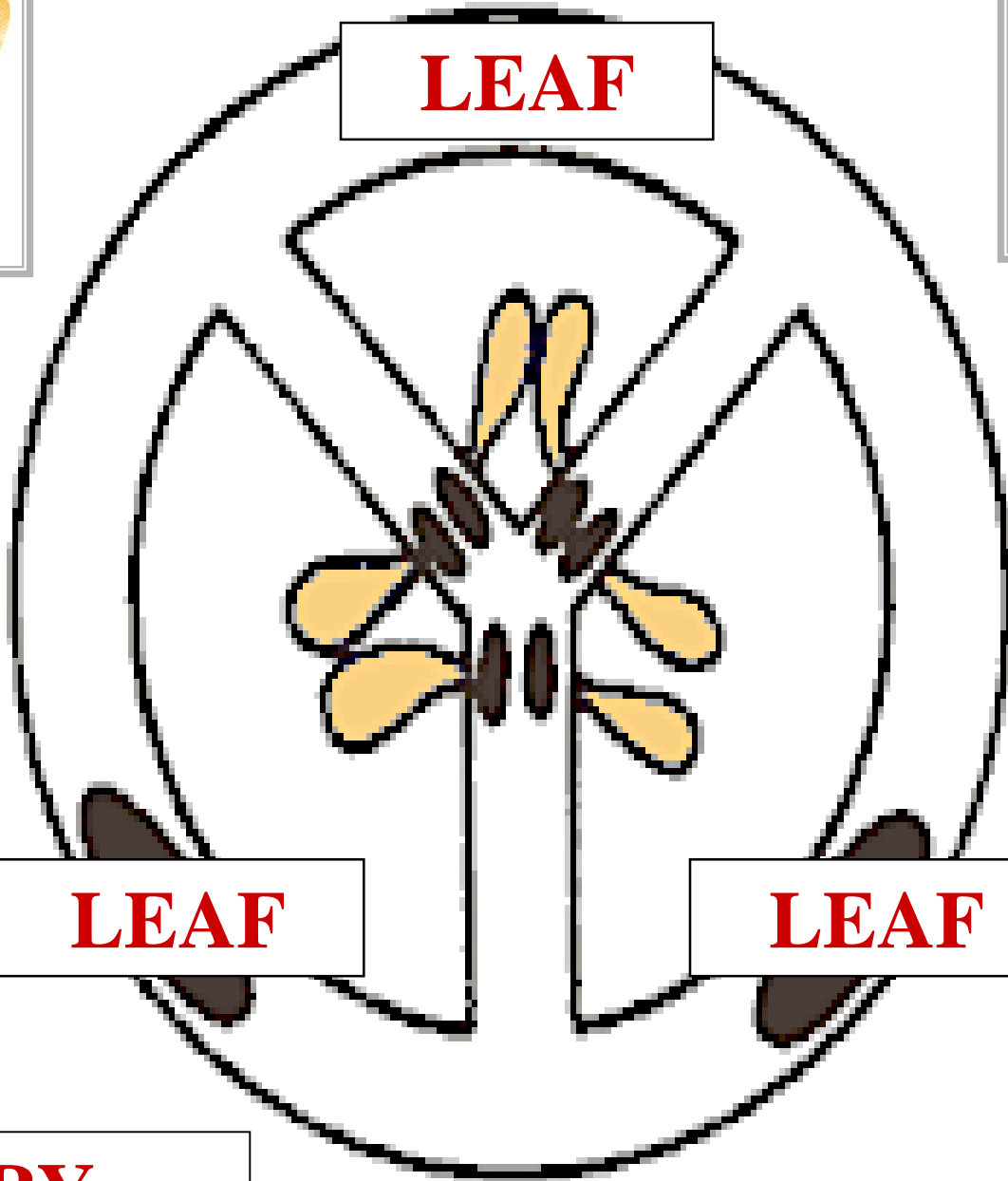
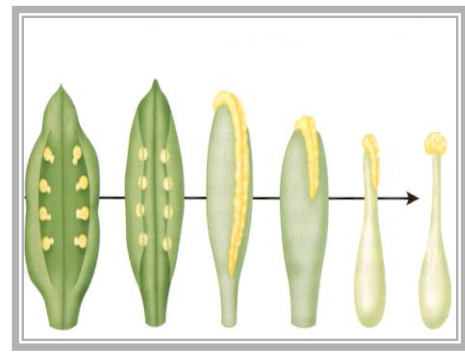
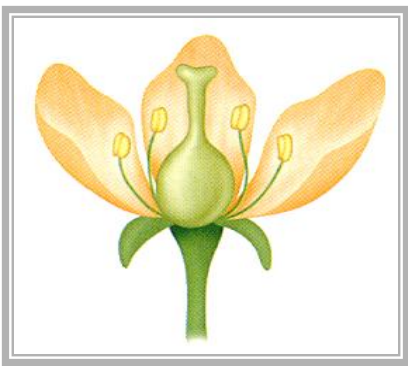


LF



OVARY

C.S.



LEAF

LEAF

LEAF

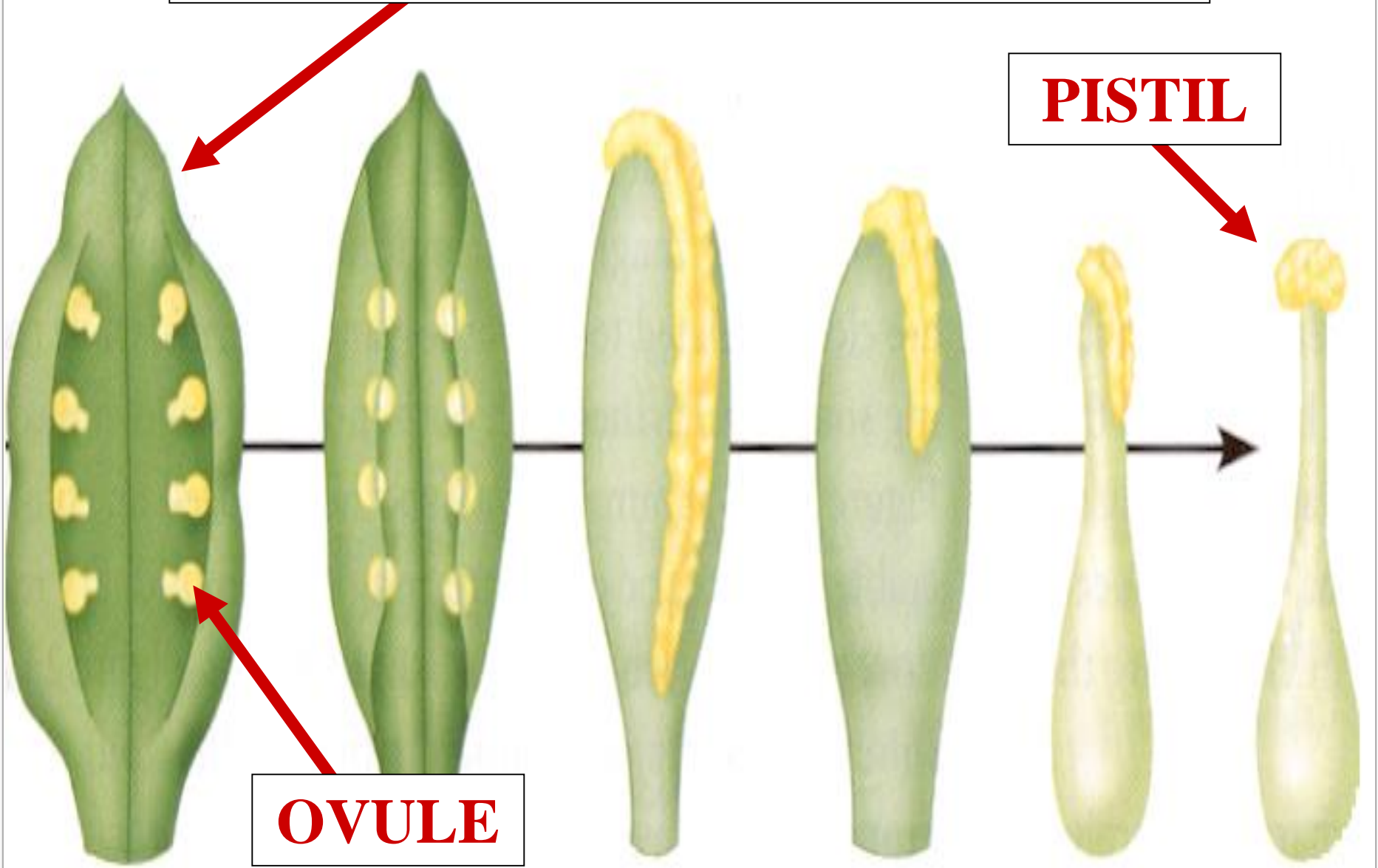
OVARY

C.S.

LEAF

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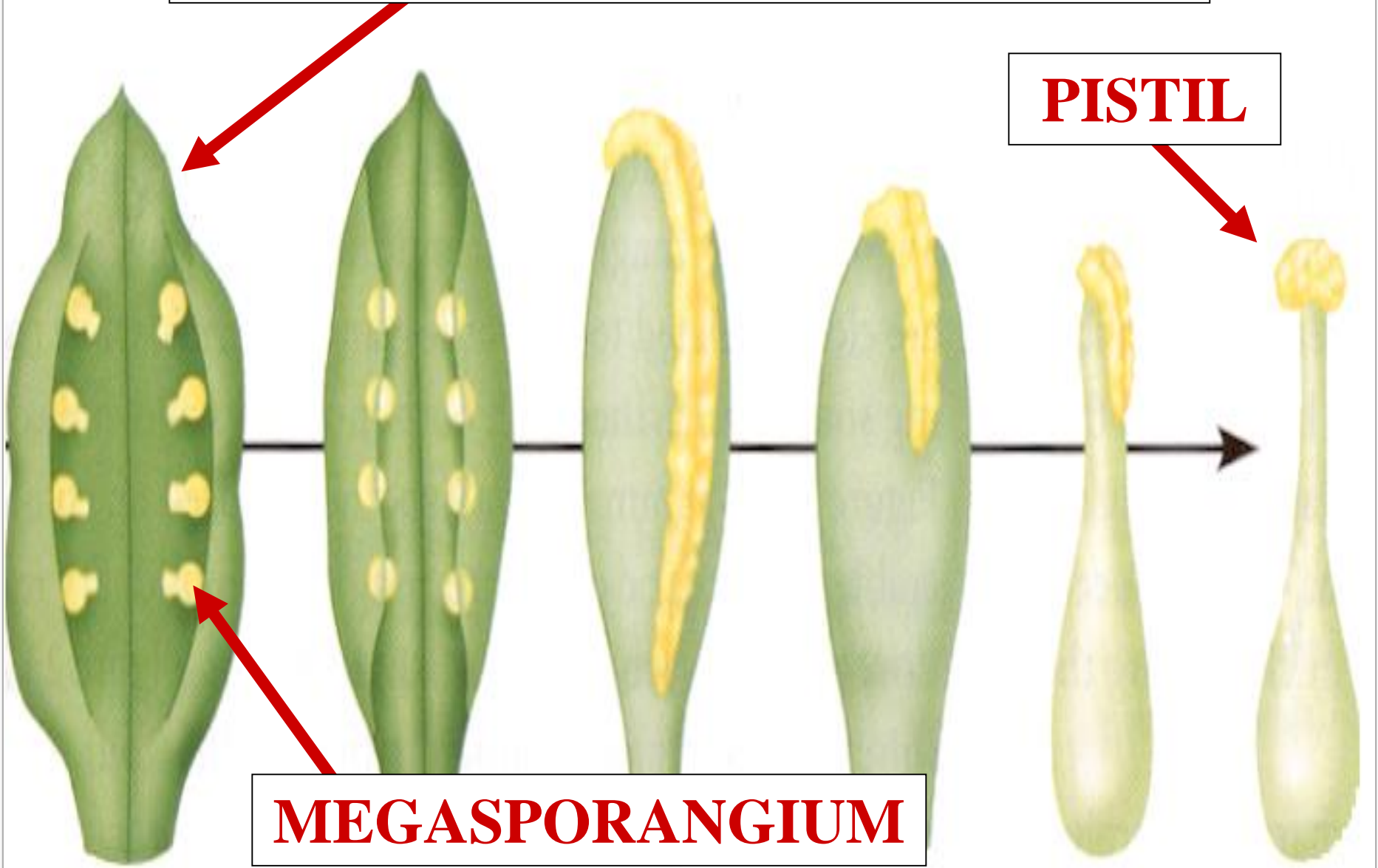
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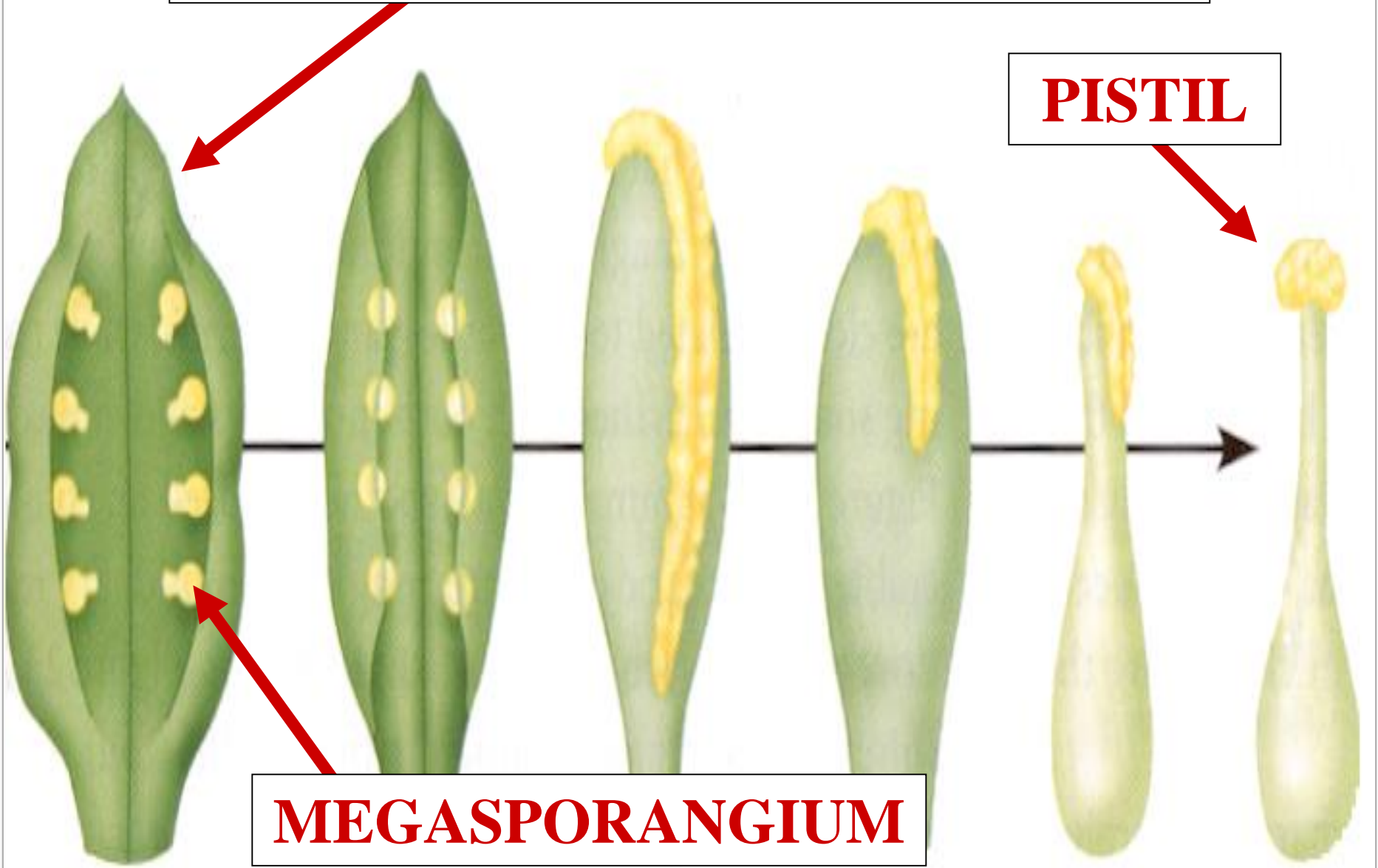
MEGASPORANGIUM



MEGASPOROPHYLL

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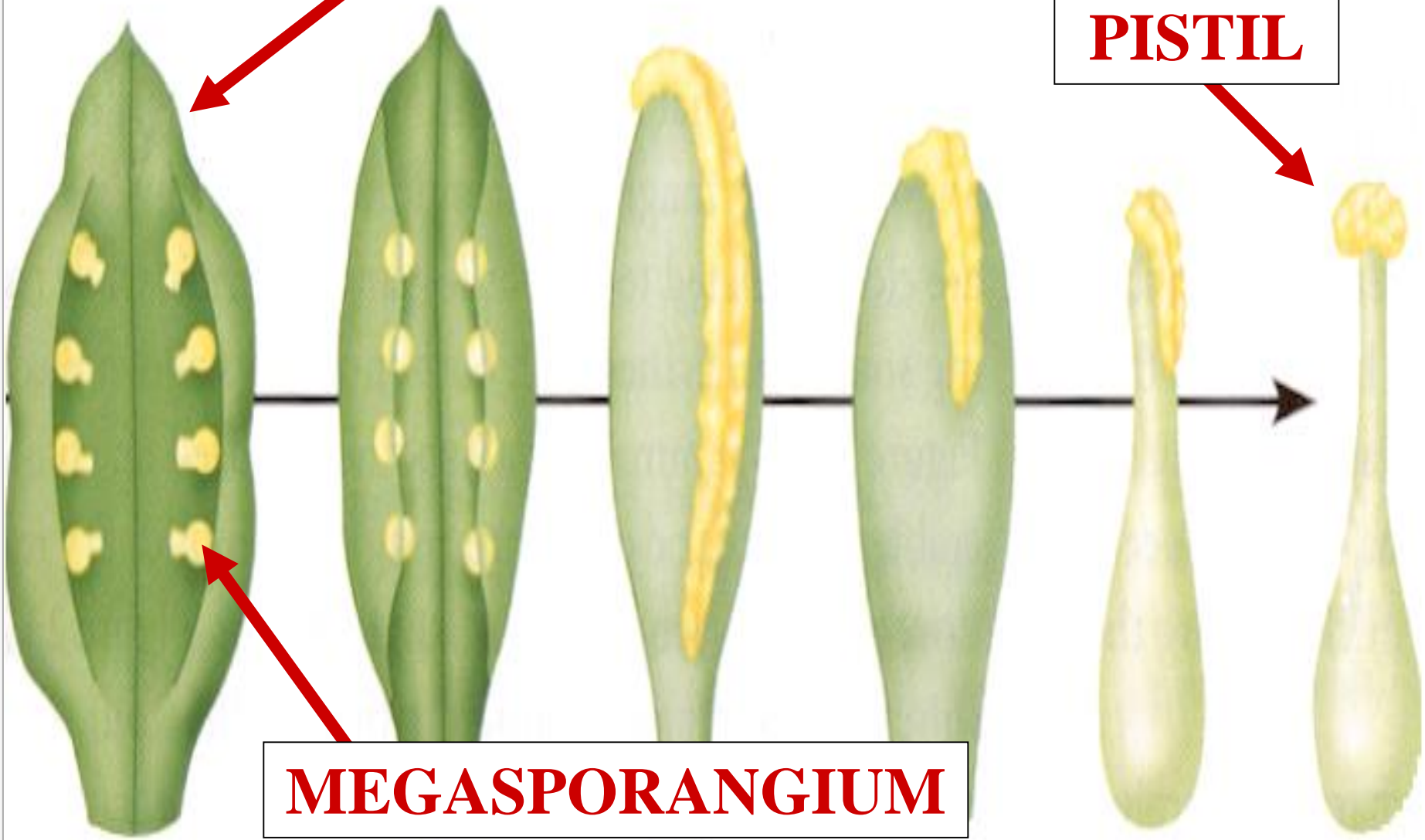
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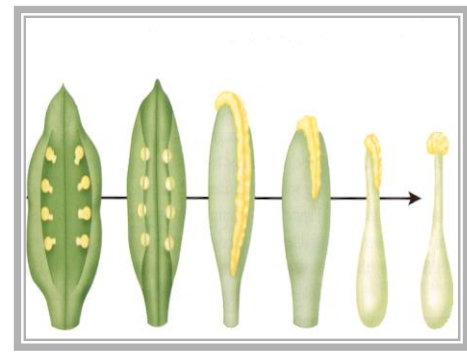
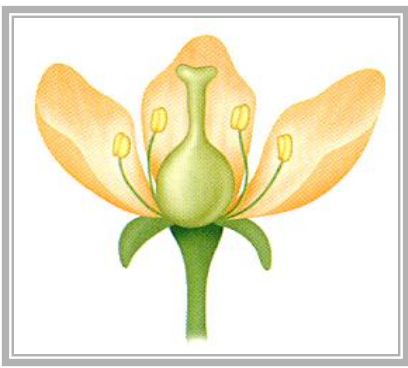


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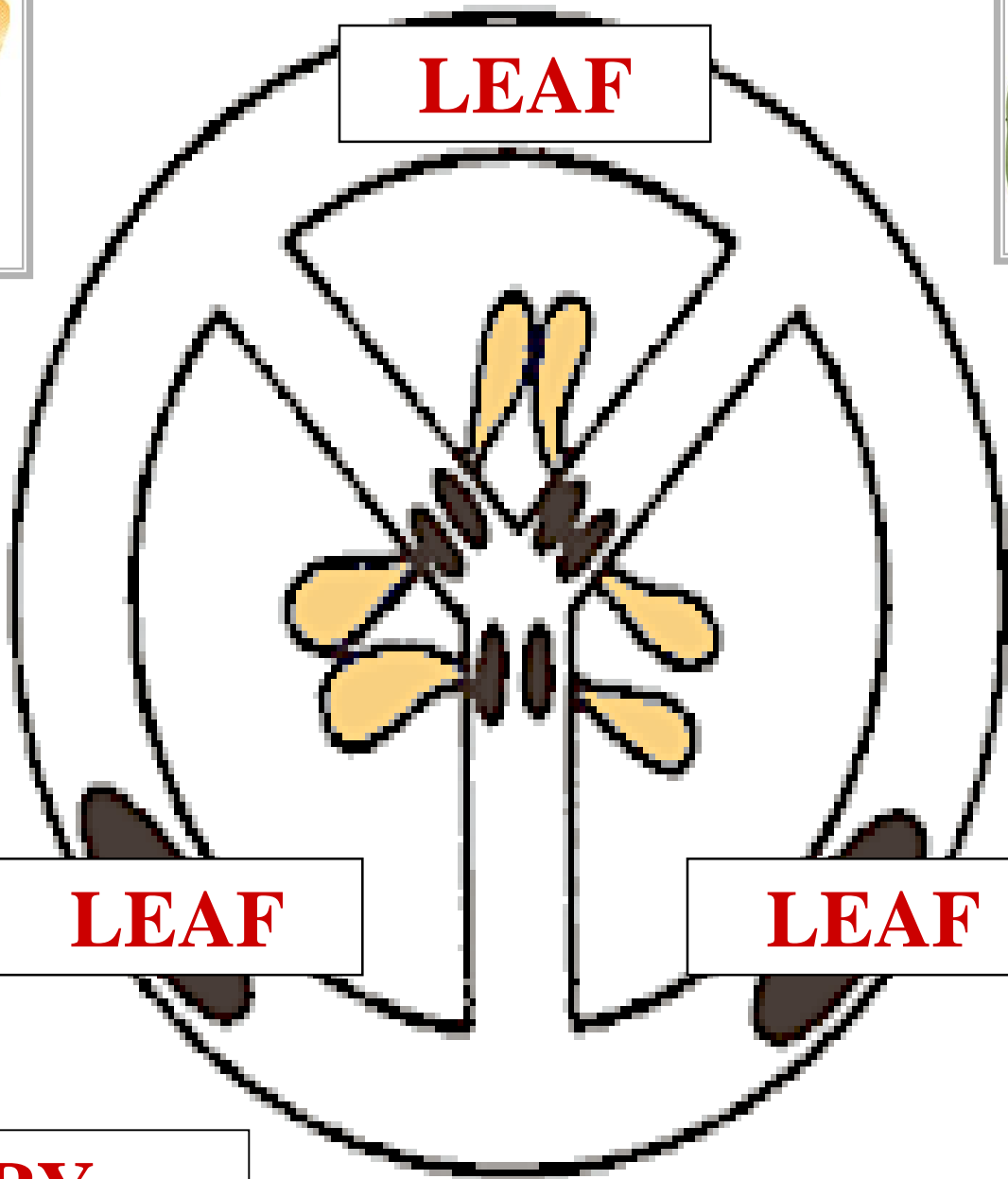
PISTIL



MEGASPORANGIUM



C



LEAF

LEAF

LEAF

OVARY

C.S.