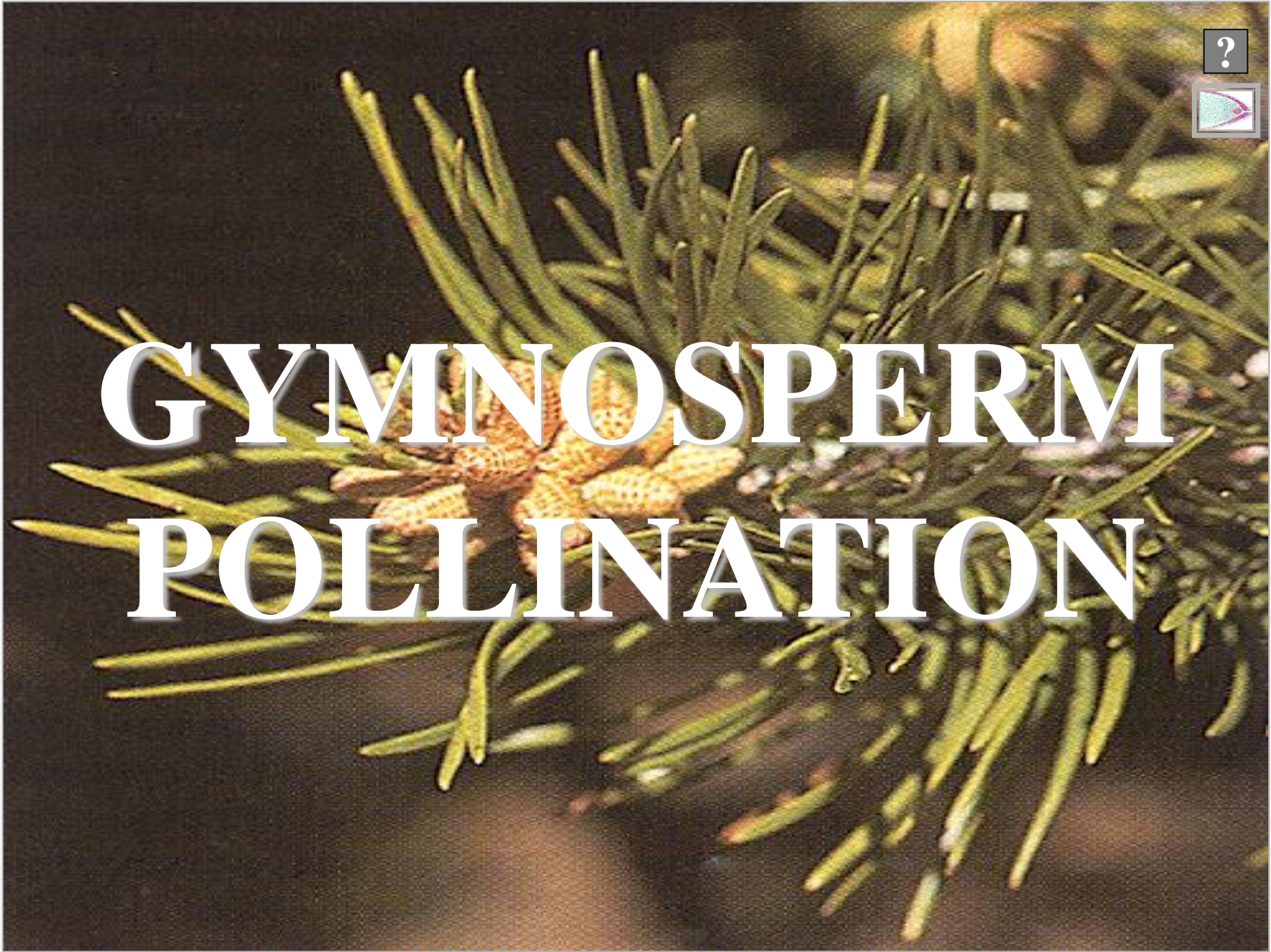




GYMNOSPERM POLLINATION



OVULE

INTEGUMENT

M

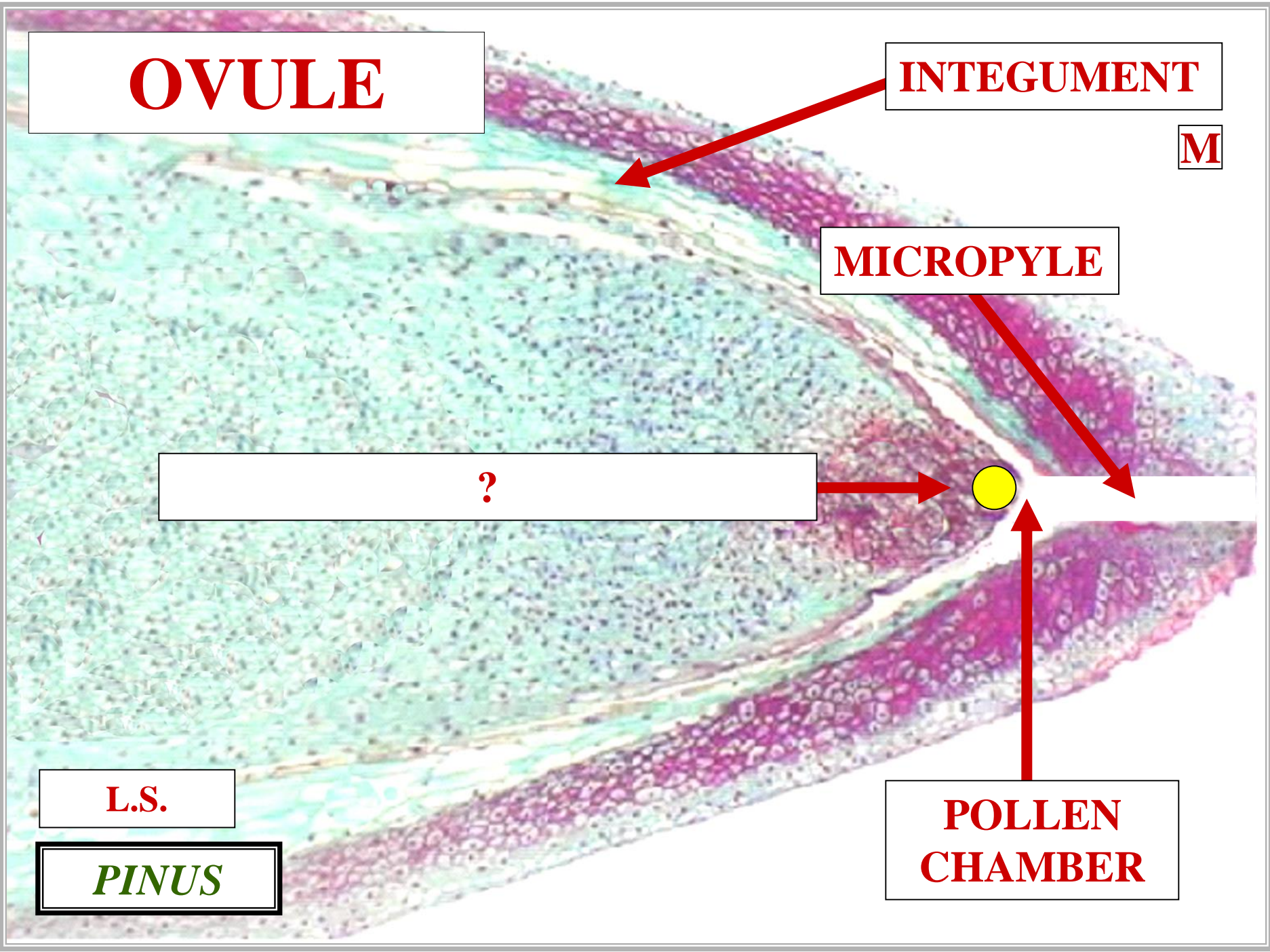
MICROPYLE

?

**POLLEN
CHAMBER**

L.S.

PINUS



OVULE

INTEGUMENT

N

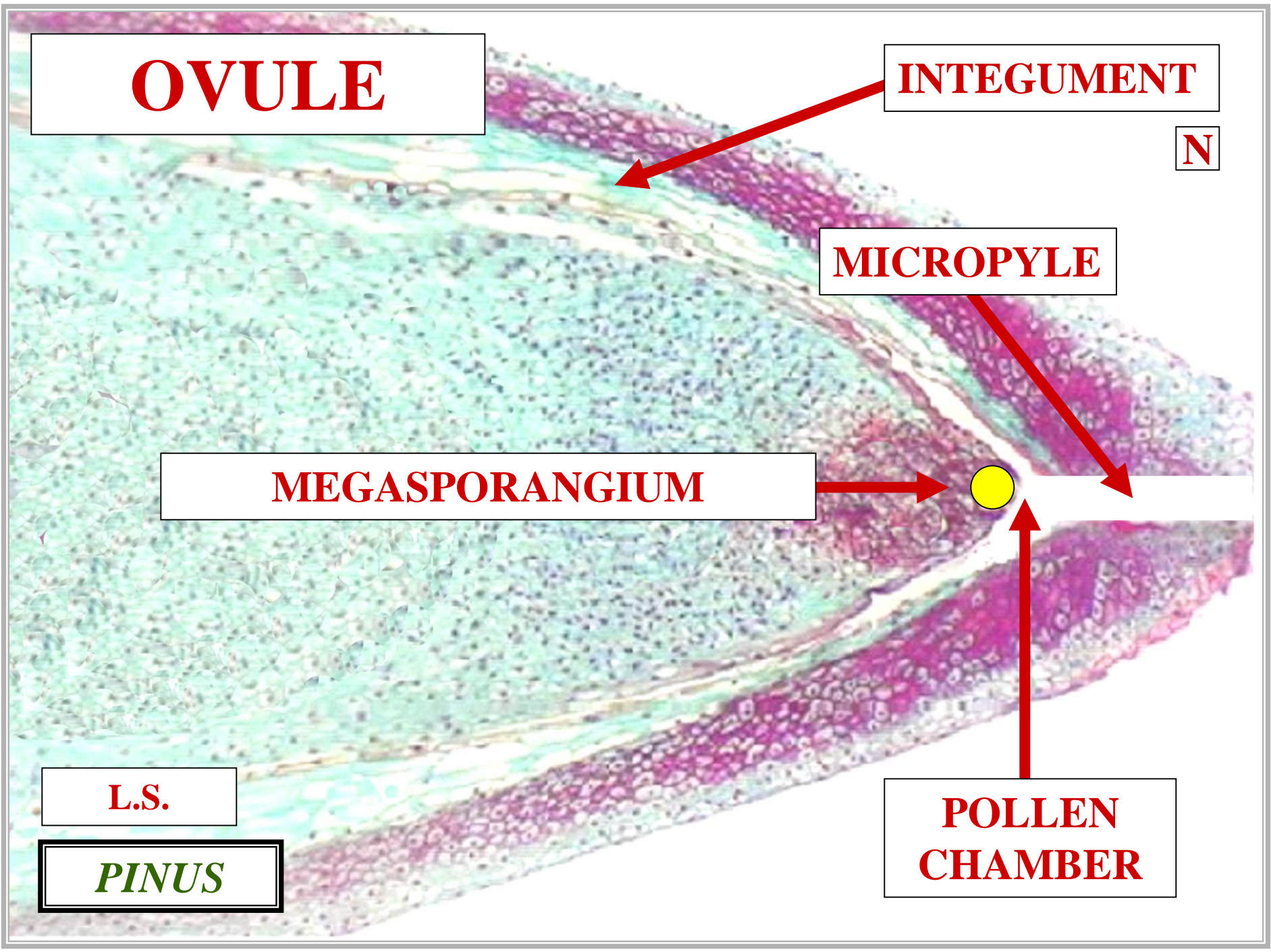
MICROPYLE

MEGASPORANGIUM

L.S.

PINUS

**POLLEN
CHAMBER**



OVULE

INTEGUMENT

P

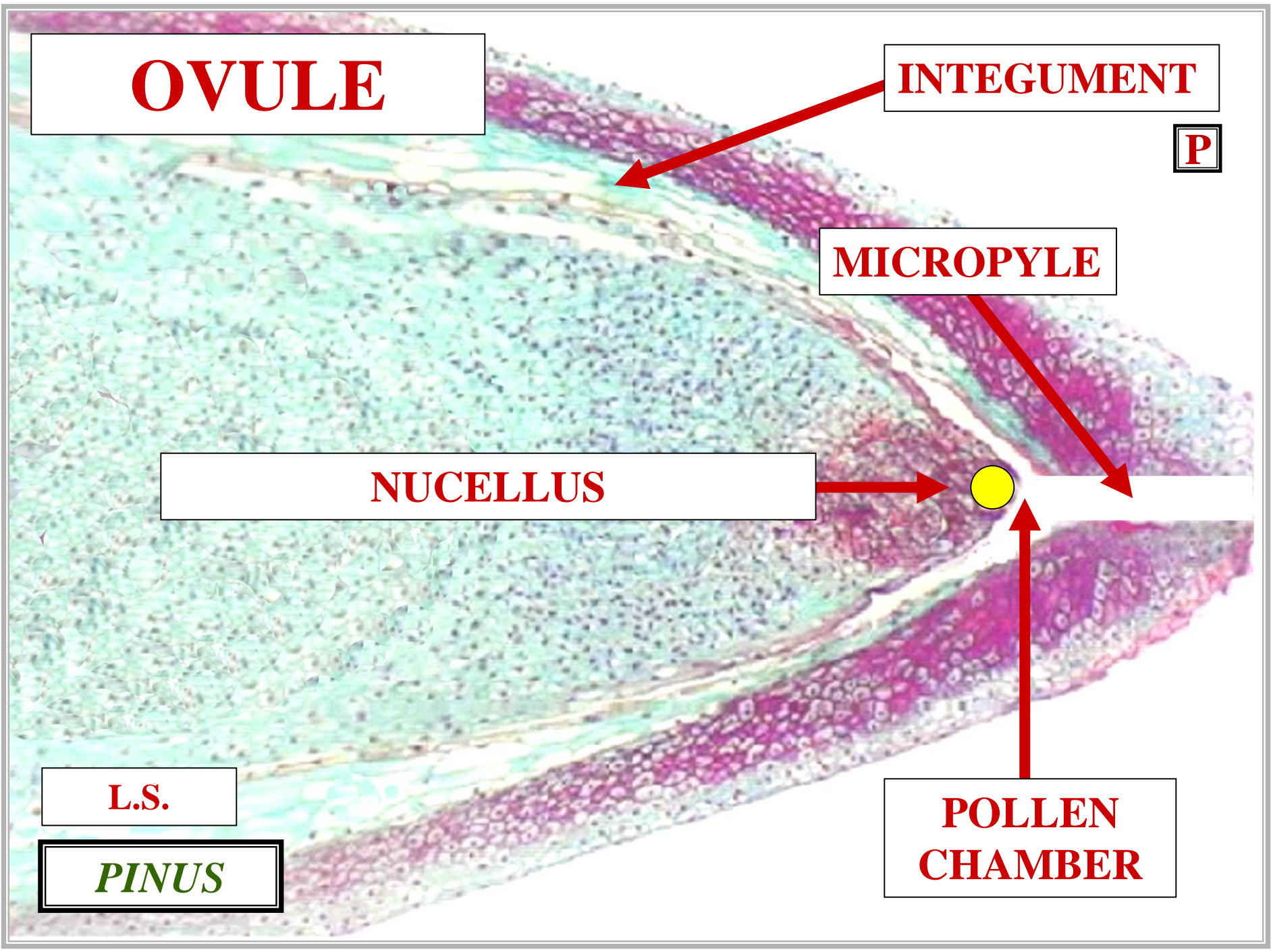
MICROPYLE

NUCELLUS

L.S.

PINUS

**POLLEN
CHAMBER**



OVULE

INTEGUMENT



MICROPYLE

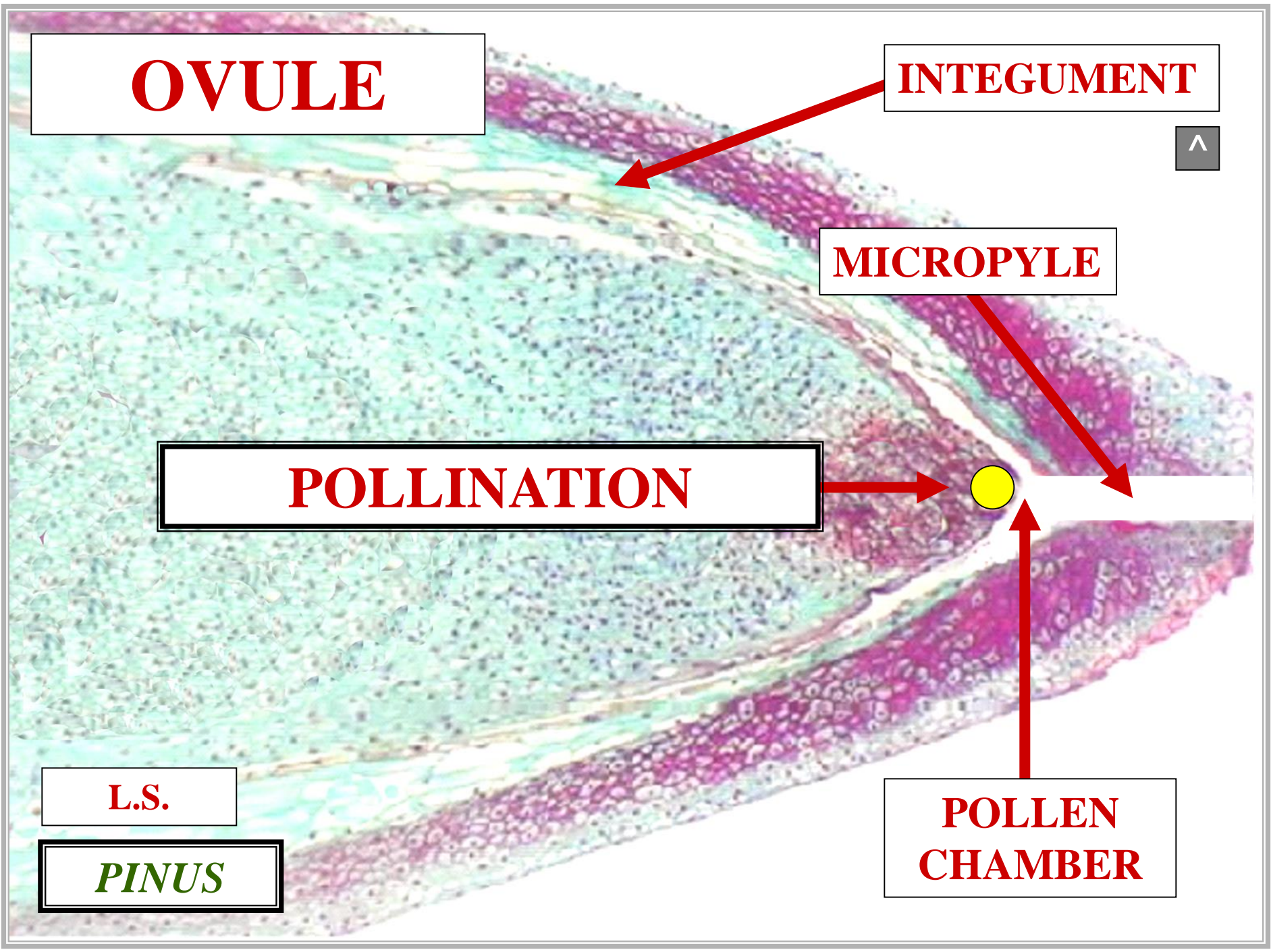
POLLINATION



L.S.

PINUS

**POLLEN
CHAMBER**



POLLINATION MODES

SELF POLLINATION



**ANGIOSPERM
SELF POLLINATION**

**PLANT POLLINATES
SELF**

**ANGIOSPERM
SELF POLLINATION**



PLANT

 = **POLLEN GRAIN**



PLANT

 = **POLLEN GRAIN**



PLANT

SELF POLLINATION

CROSS POLLINATION



**ANGIOSPERM
CROSS POLLINATION**

**PLANT POLLINATES
SECOND PLANT**

**ANGIOSPERM
CROSS POLLINATION**



PLANT 1



PLANT 2

 = **POLLEN GRAIN**



PLANT 1



PLANT 2

 = **POLLEN GRAIN**



PLANT 1



PLANT 2



= POLLEN GRAIN



PLANT 1



PLANT 2

 = **POLLEN GRAIN**



PLANT 1



PLANT 2

CROSS POLLINATION



PLANT 1



PLANT 2

PLT PREFERS CROSS POLLINATION



PLANT 1



PLANT 2

ENSURES GENETIC DIVERSITY



PERFECT FLOWER PLANTS

POLLINATION



**PERFECT
FLOWER**

PLANT

TO AVOID SELF POLLINATION

DICHO GAMY



ANGIOSPERM

POLLINATION DICHOGAMY

ANDROCECIUM

AND

GYNOECIUM

MATURE AT DIFFERENT TIMES

ANGIOSPERM

POLLINATION DICHOGAMY

ANGIOSPERM

^

P

POLLINATION DICHOGAMY

PREVENTS

SELF POLLINATION

ANGIOSPERM

POLLINATION DICHOGAMY

PROTANDROUS DICHOGAMY

ANGIOSPERM

POLLINATION DICHOGAMY

PROTANDROUS

ANDROECIUM

MATURES

FIRST

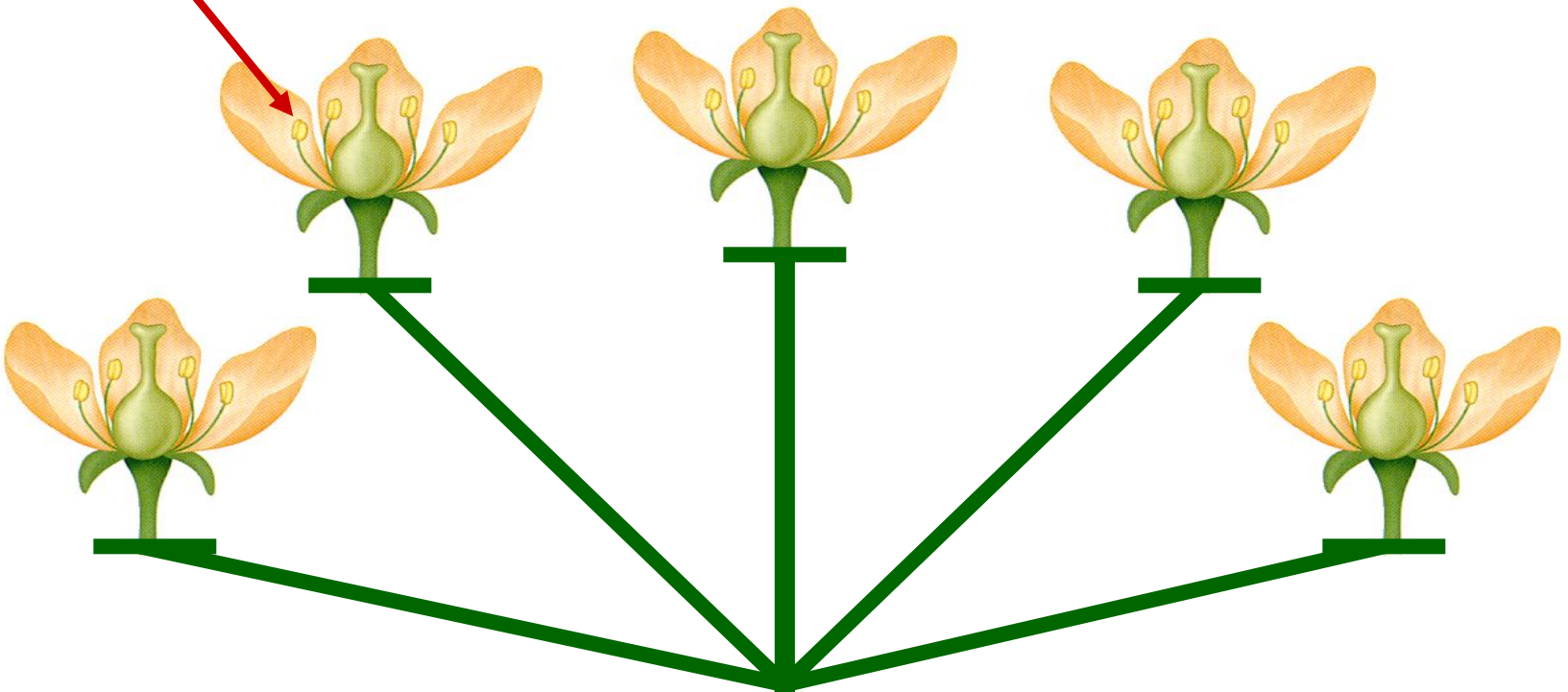
ANGIOSPERM

POLLINATION DICHOGAMY

PROTANDROUS



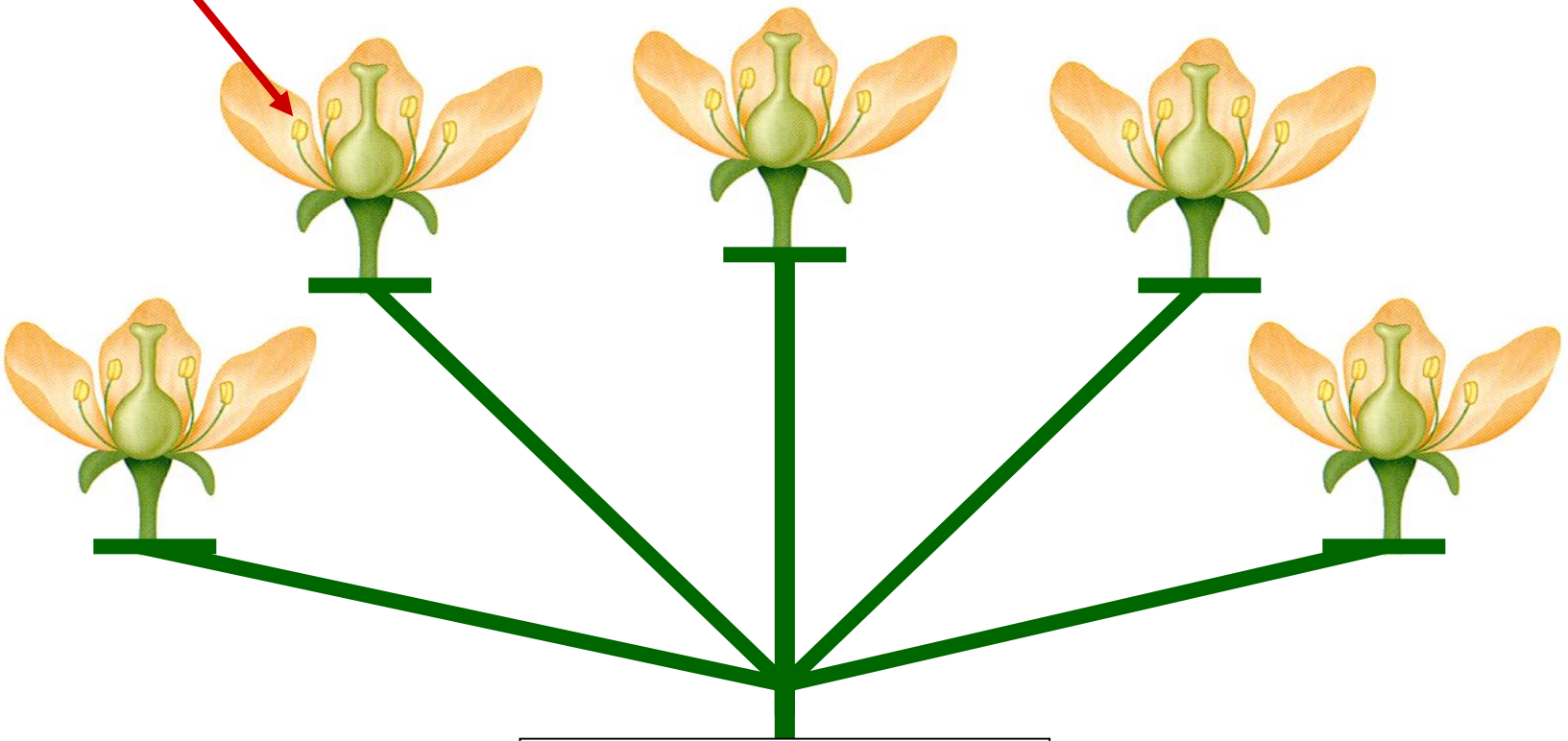
ANDROECIUM



PERFECT FLS

PLANT

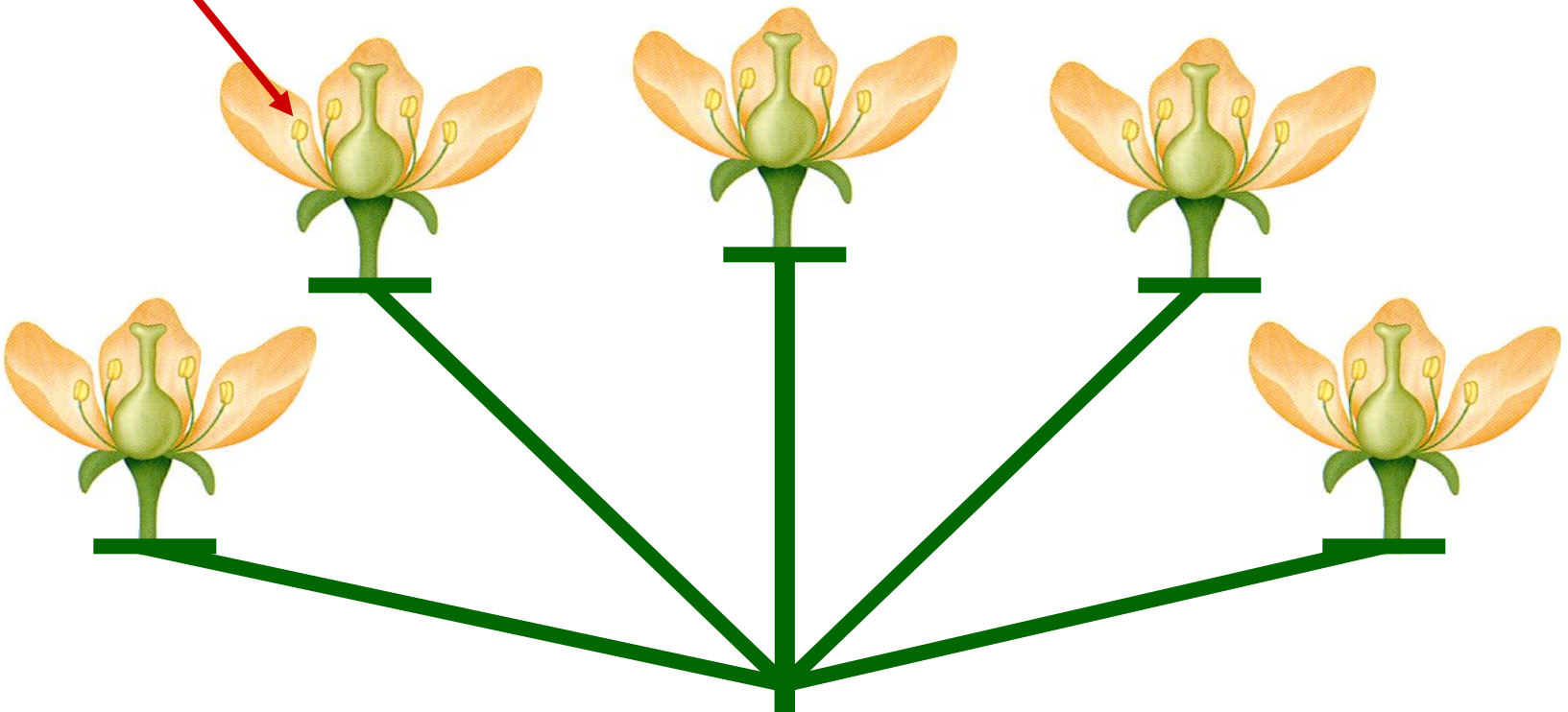
**ANDROECIUM
MATURES 1ST**



**PROTANDROUS
DICHOGAMY**

PLANT

**ANDROECIUM
MATURES 1ST**

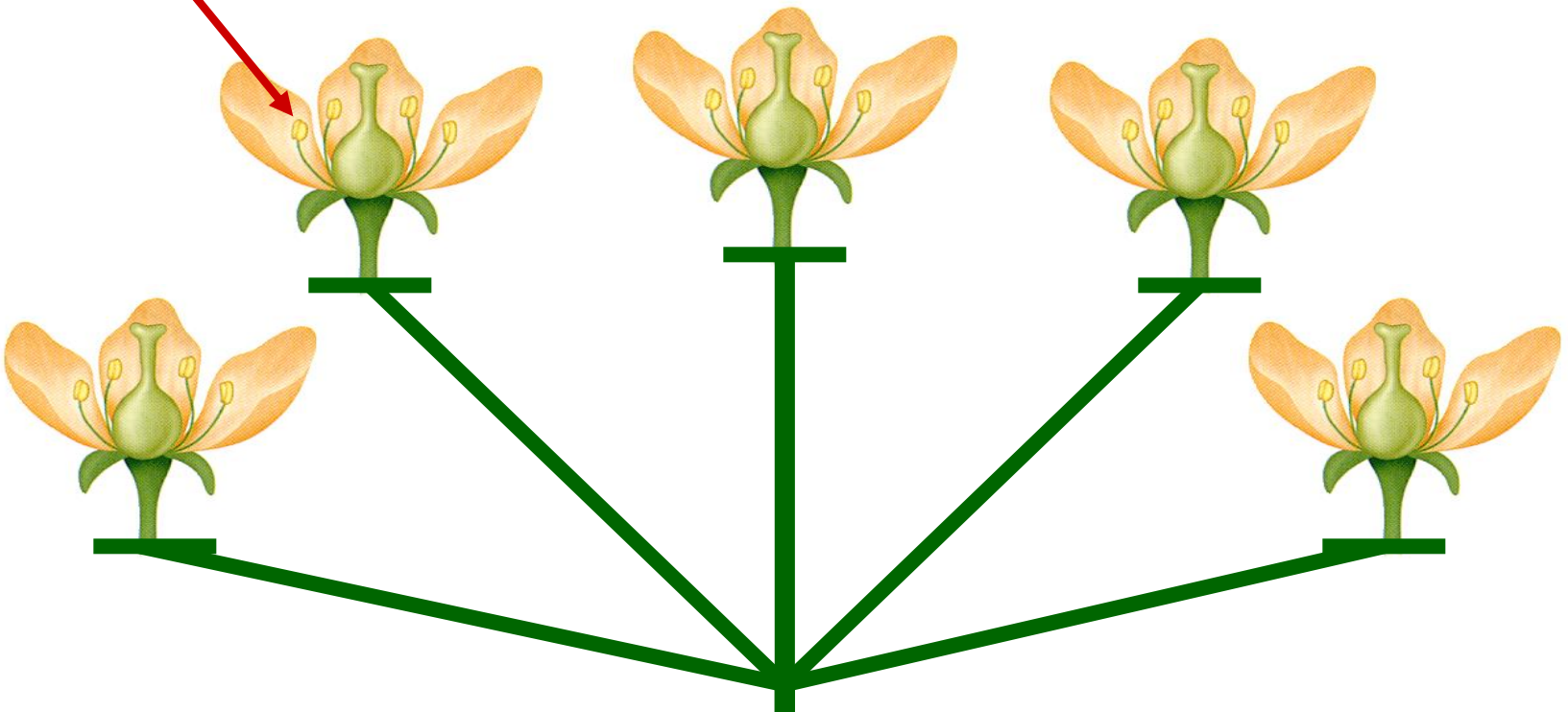


PROTANDROUS

PREVENTS SELF POLLINATION

PLANT

**ANDROECIUM
MATURES 1ST**



PROTANDROUS

ENSURES SOME CROSS POLLINATION

PLANT

PROTOGYNOUS DICHOGAMY

ANGIOSPERM

POLLINATION DICHOGAMY

PROTOGYNOUS

GYNOECIUM

MATURES

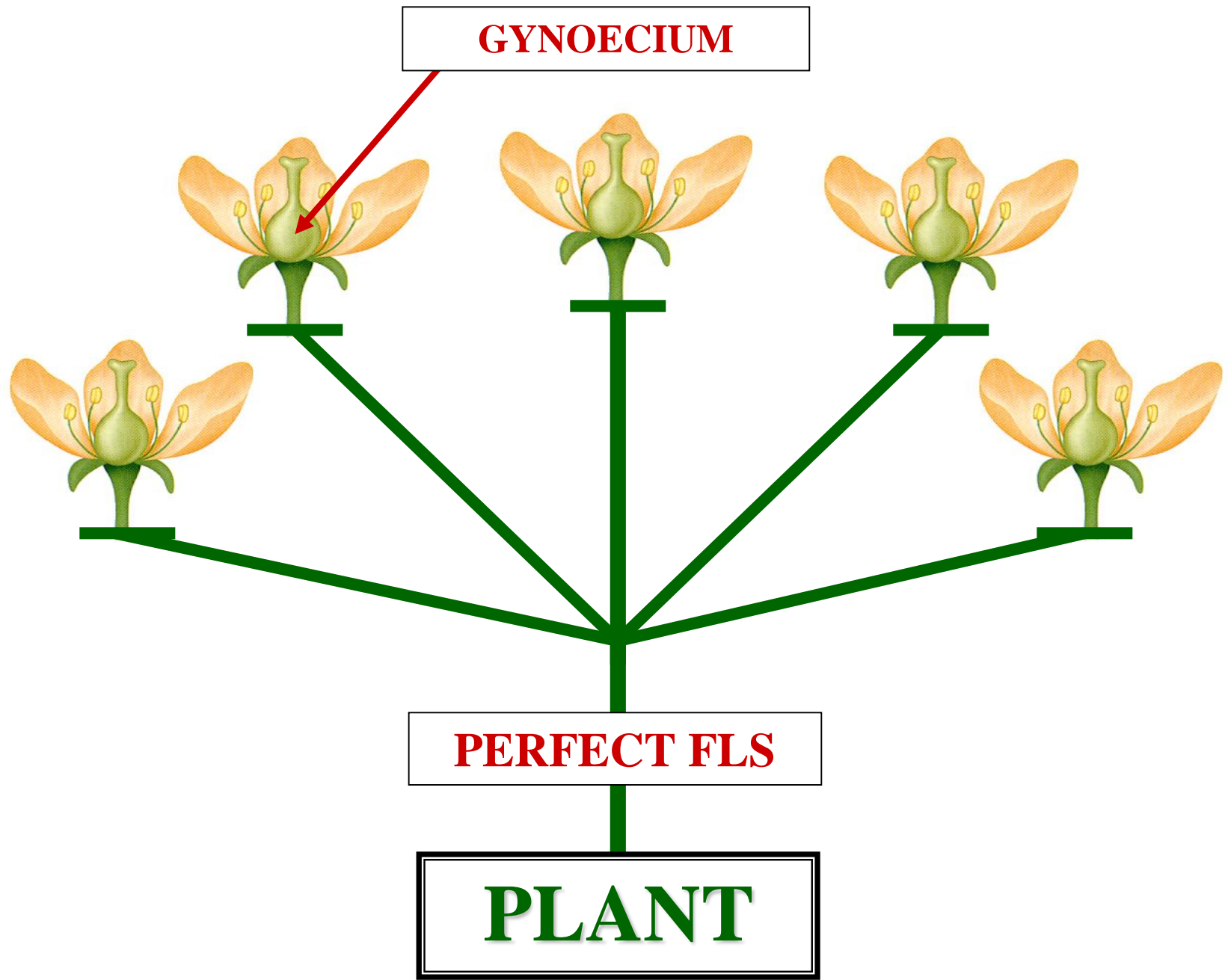
FIRST

ANGIOSPERM

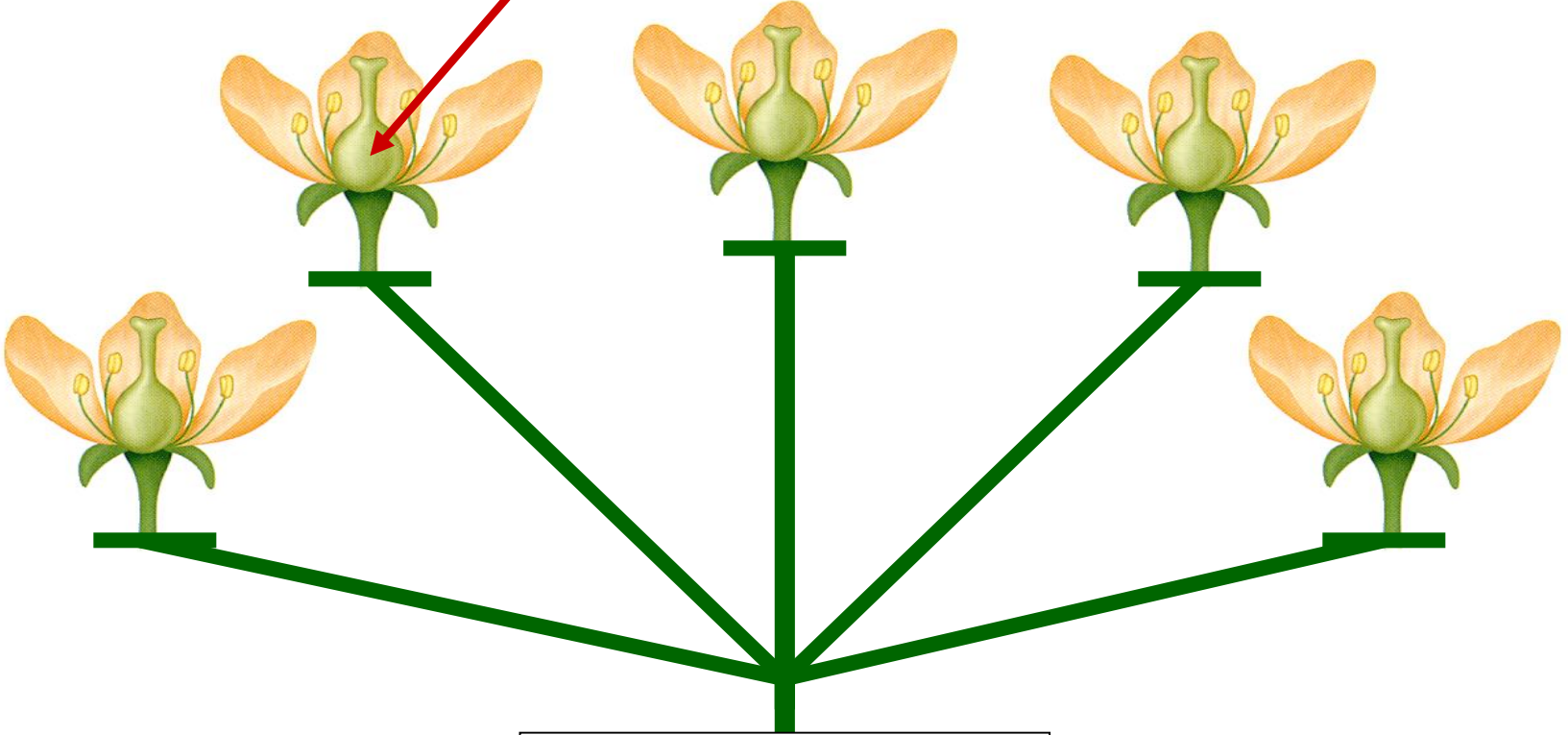
POLLINATION DICHOGAMY

PROTOGYNOUS





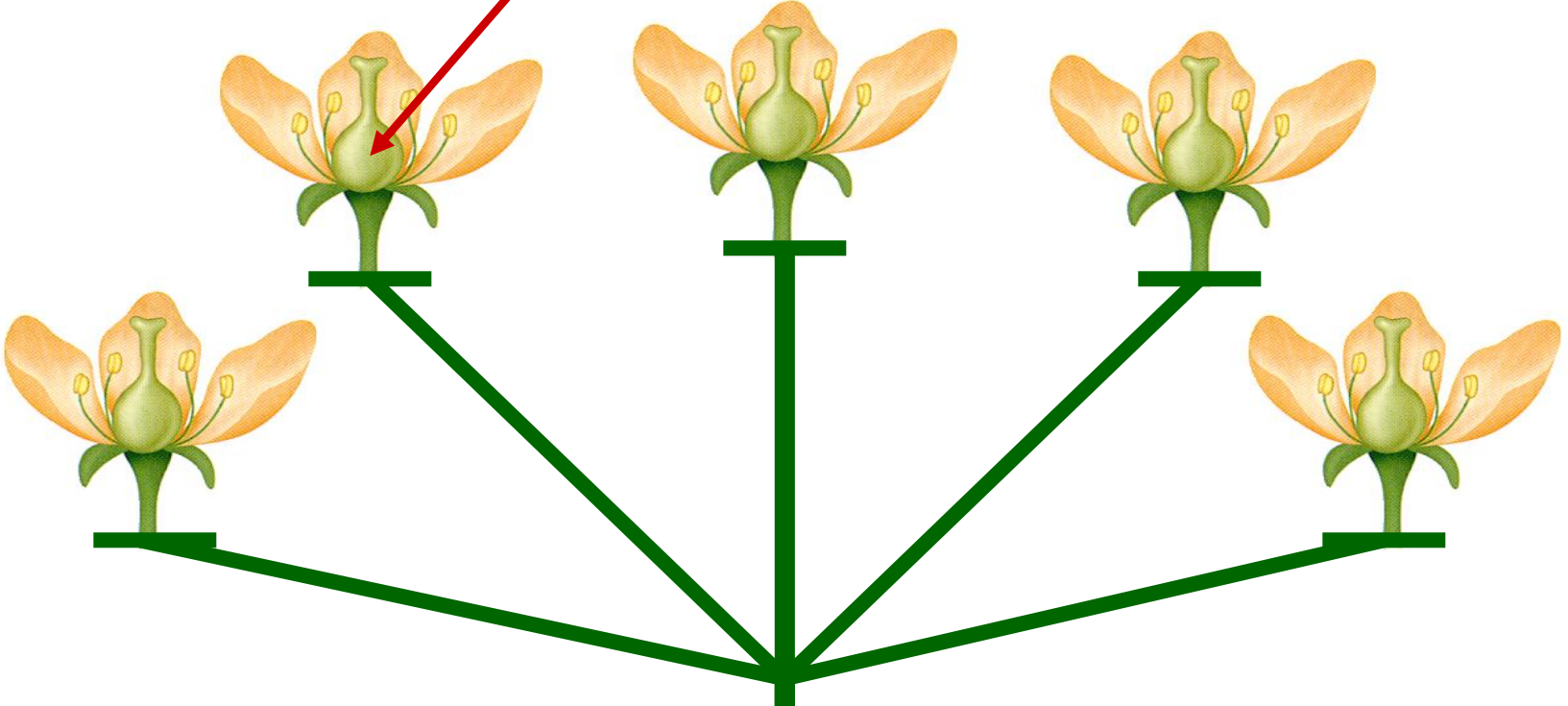
**GYNOECIUM
MATURES 1ST**



**PROTOGYNOUS
DICHO GAMY**

PLANT

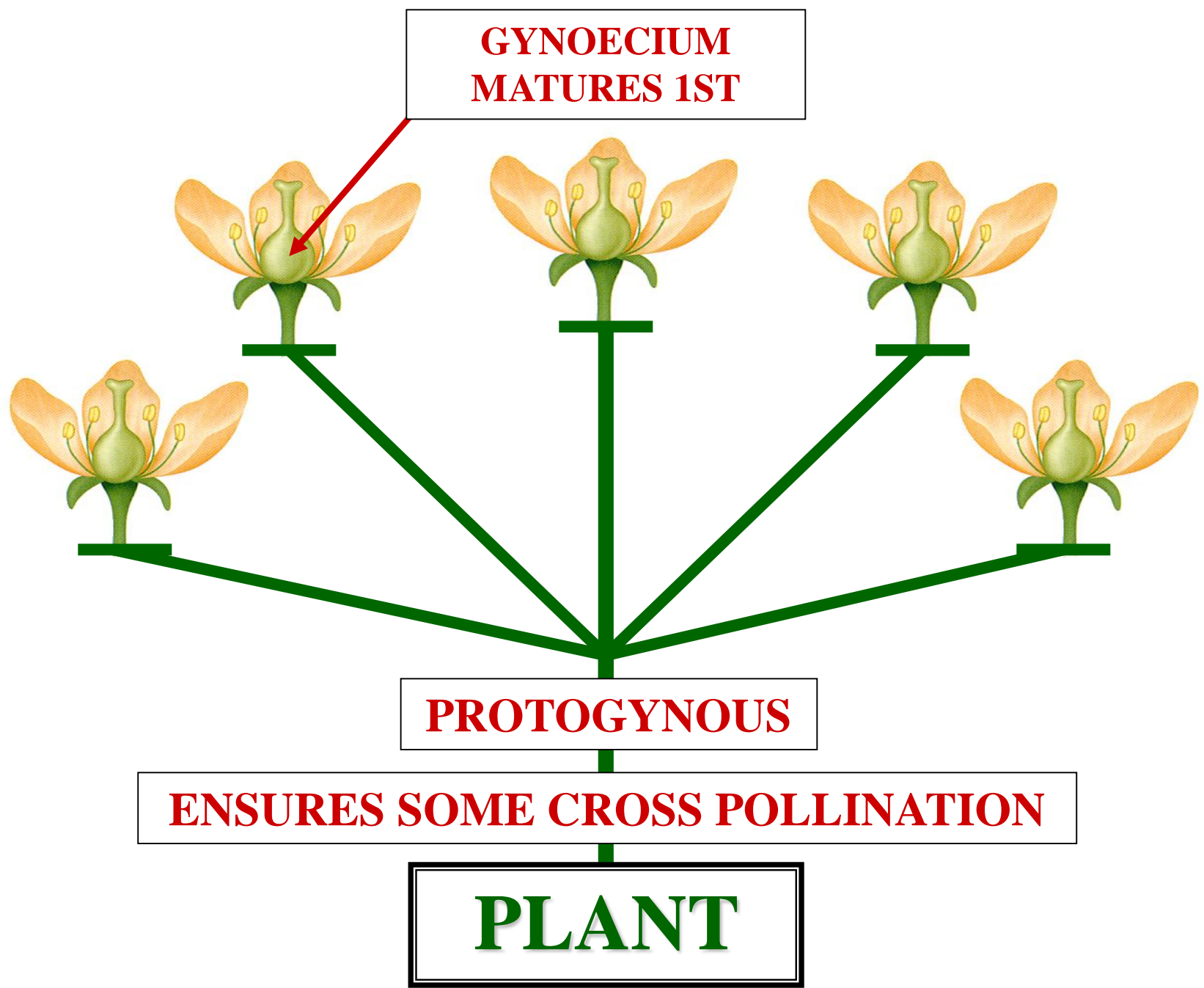
**GYNOECIUM
MATURES 1ST**



PROTOGYNOUS

PREVENTS SELF POLLINATION

PLANT





DICHOGAMY



PERFECT FLS

PLANT 1



PERFECT FLS

PLANT 2

ENSURES SOME CROSS POLLINATION

DICHOGAMY



PERFECT FLS

PLANT 1



PERFECT FLS

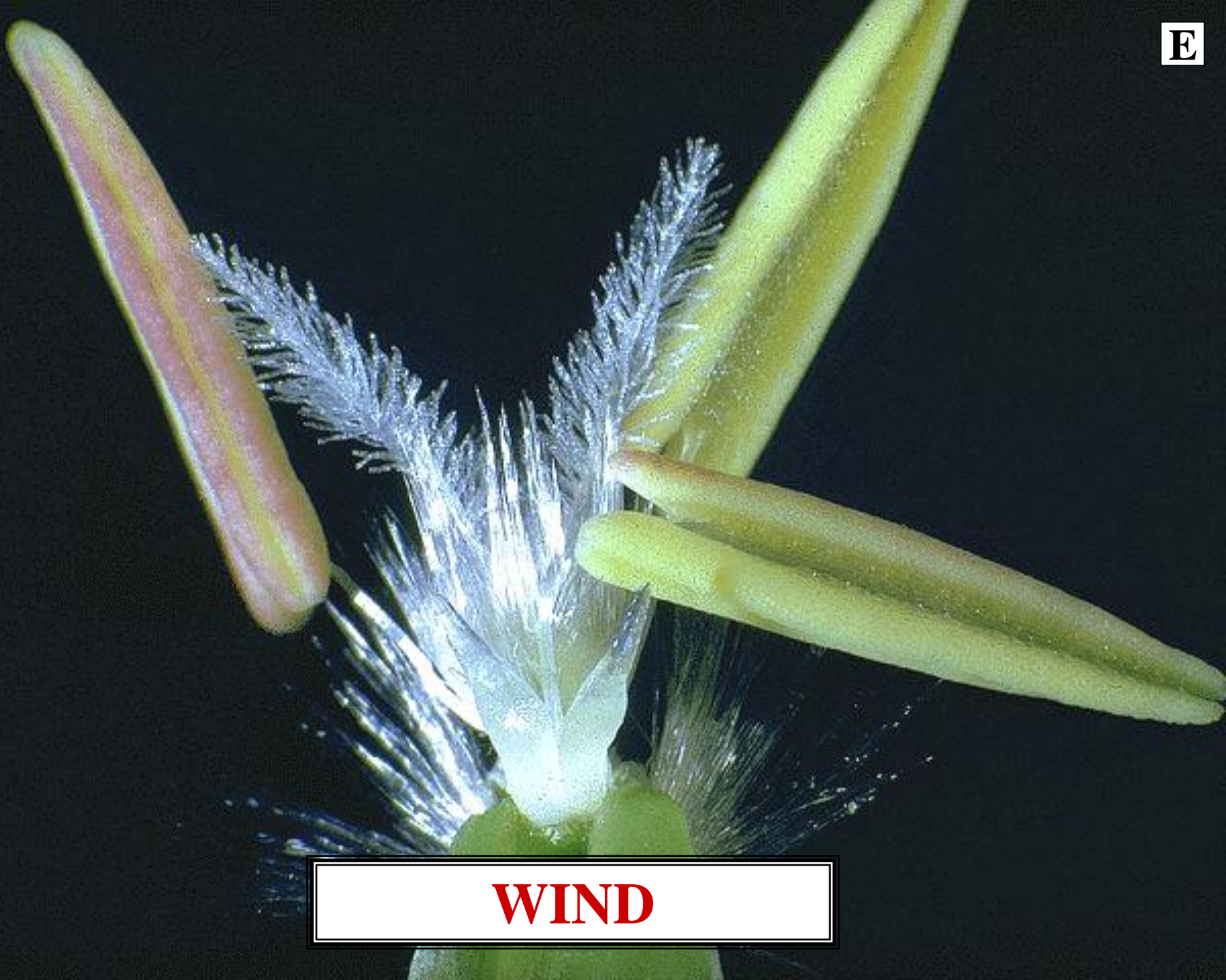
PLANT 2

ENSURES GENETIC DIVERSITY

POLLINATION VECTORS



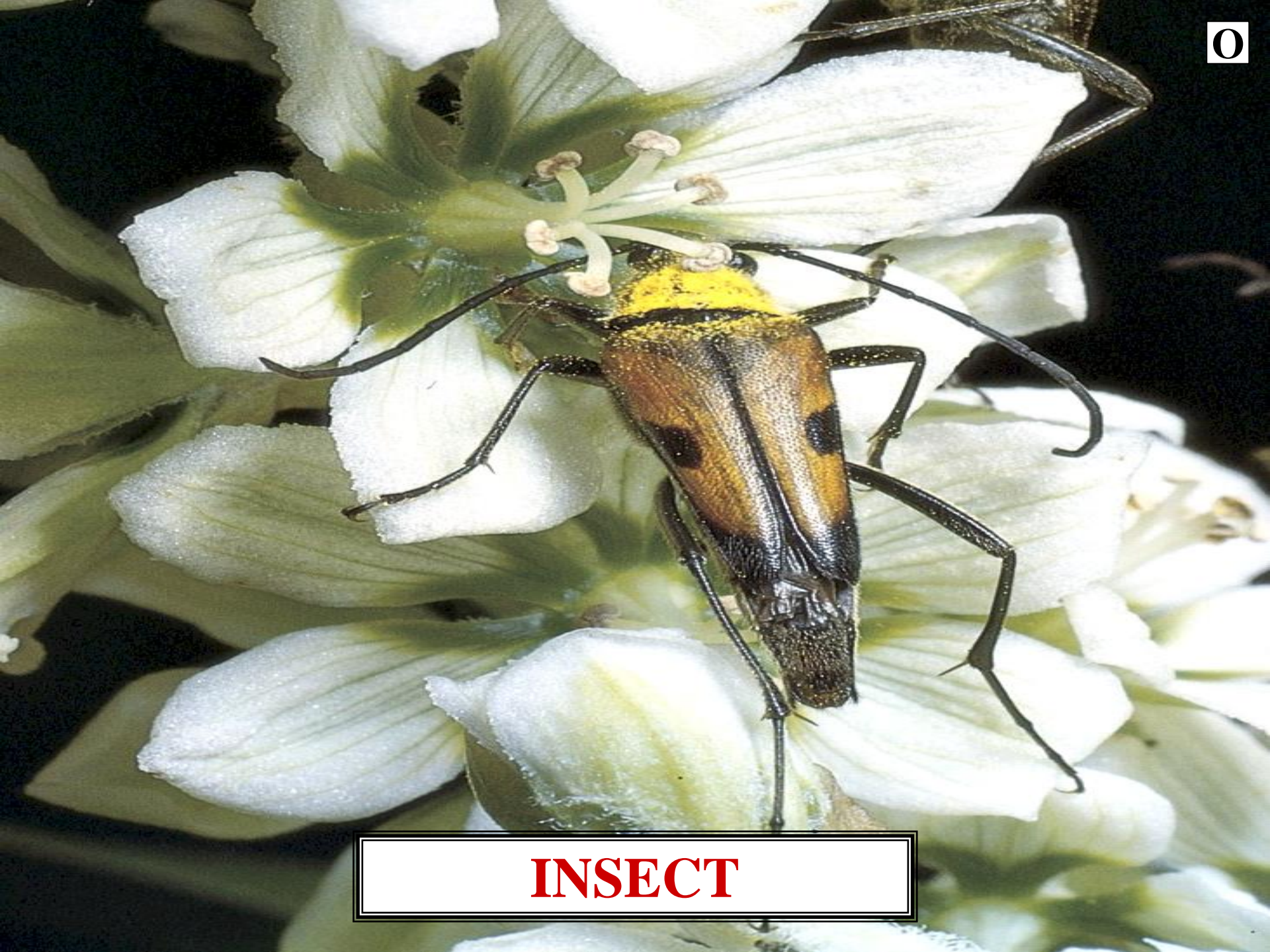
ANEMOPHILOUS POLLINATION



WIND



ENTOMOPHILOUS POLLINATION



INSECT



ORNITHOPHILOUS POLLINATION



BIRD



BIRD



CHEIROPTEROPHILOUS POLLINATION



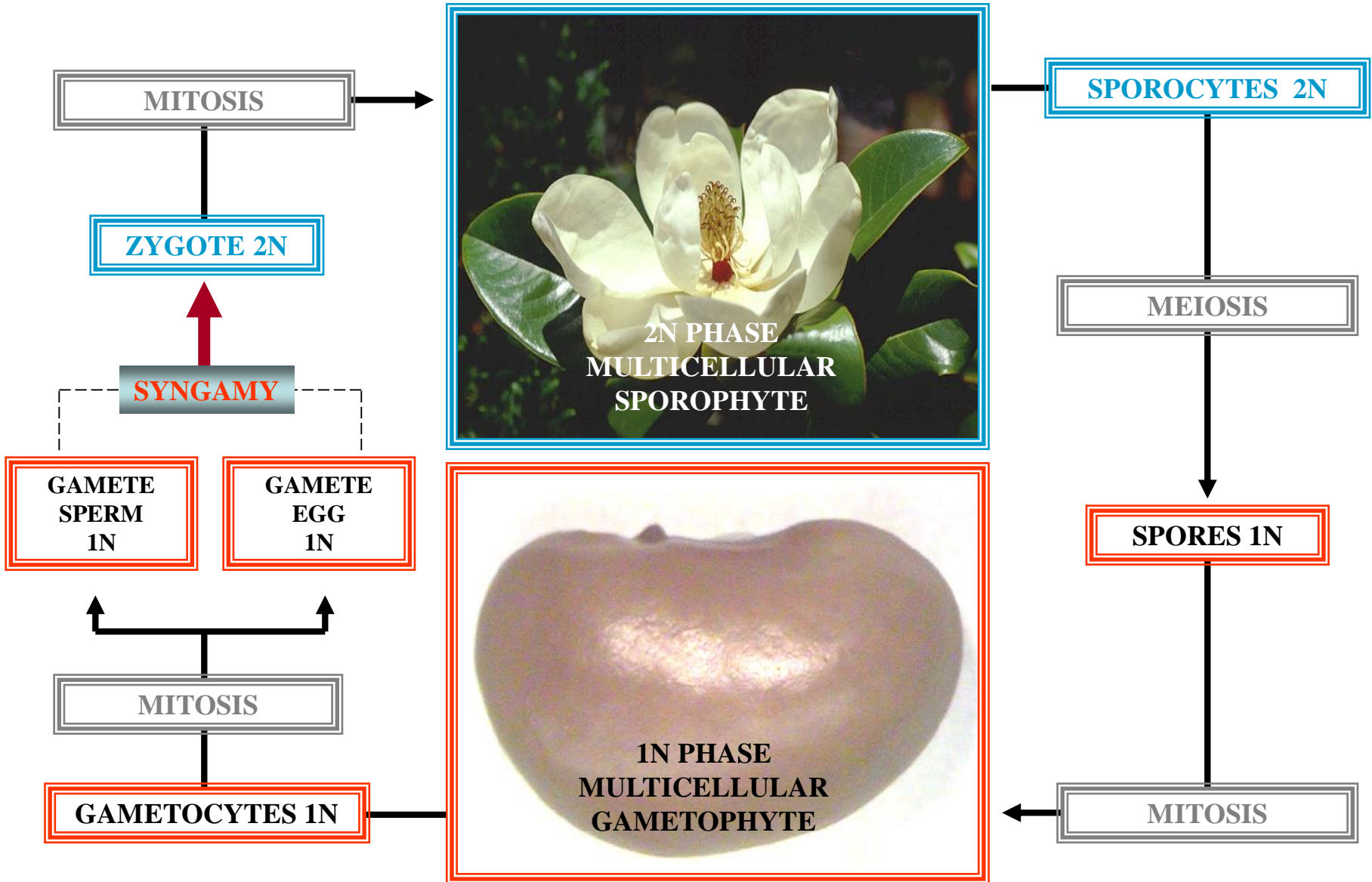
BAT



ANGIOSPERM LIFE CYCLE

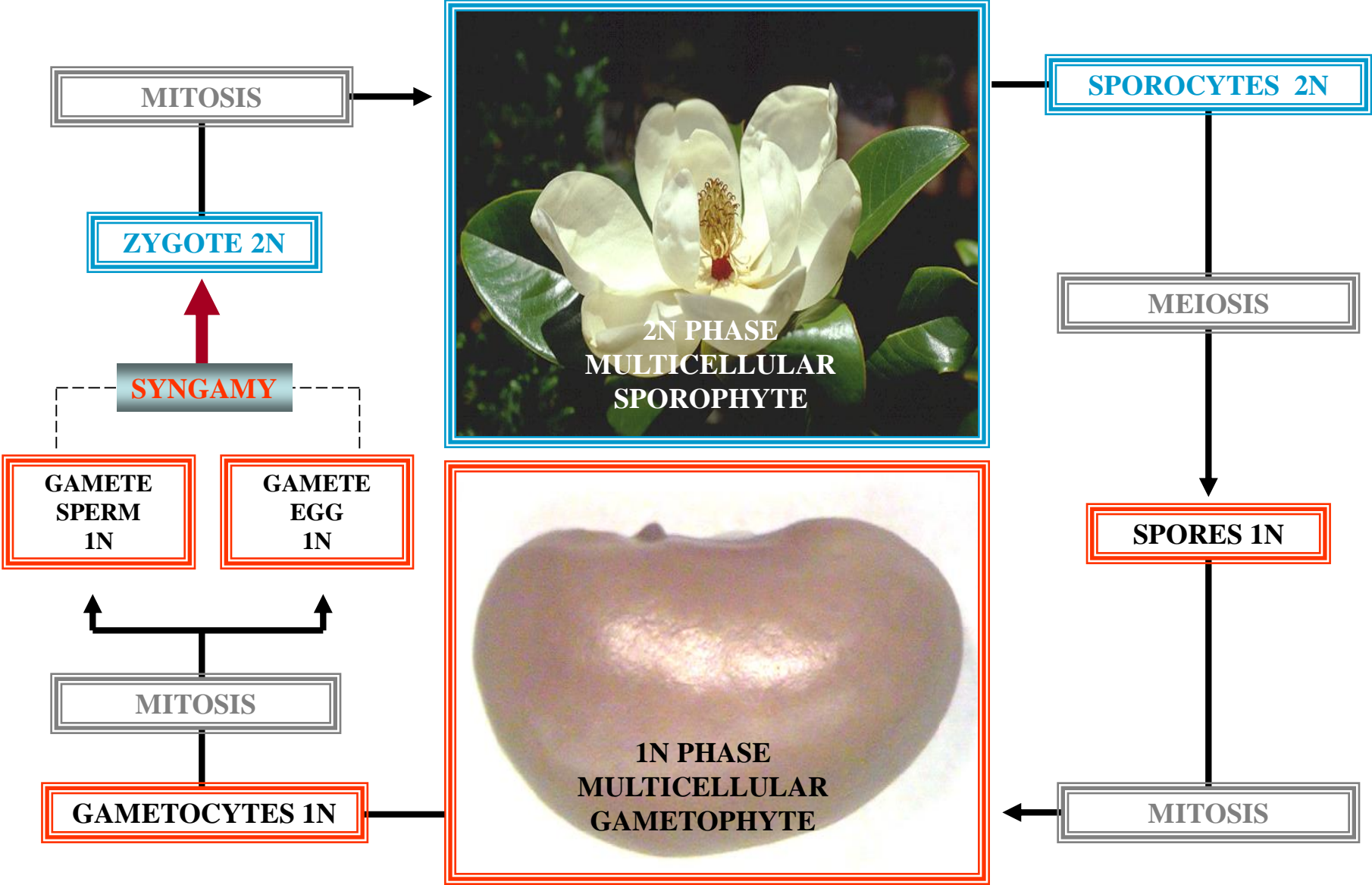


ANGIOSPERM LIFE CYCLE

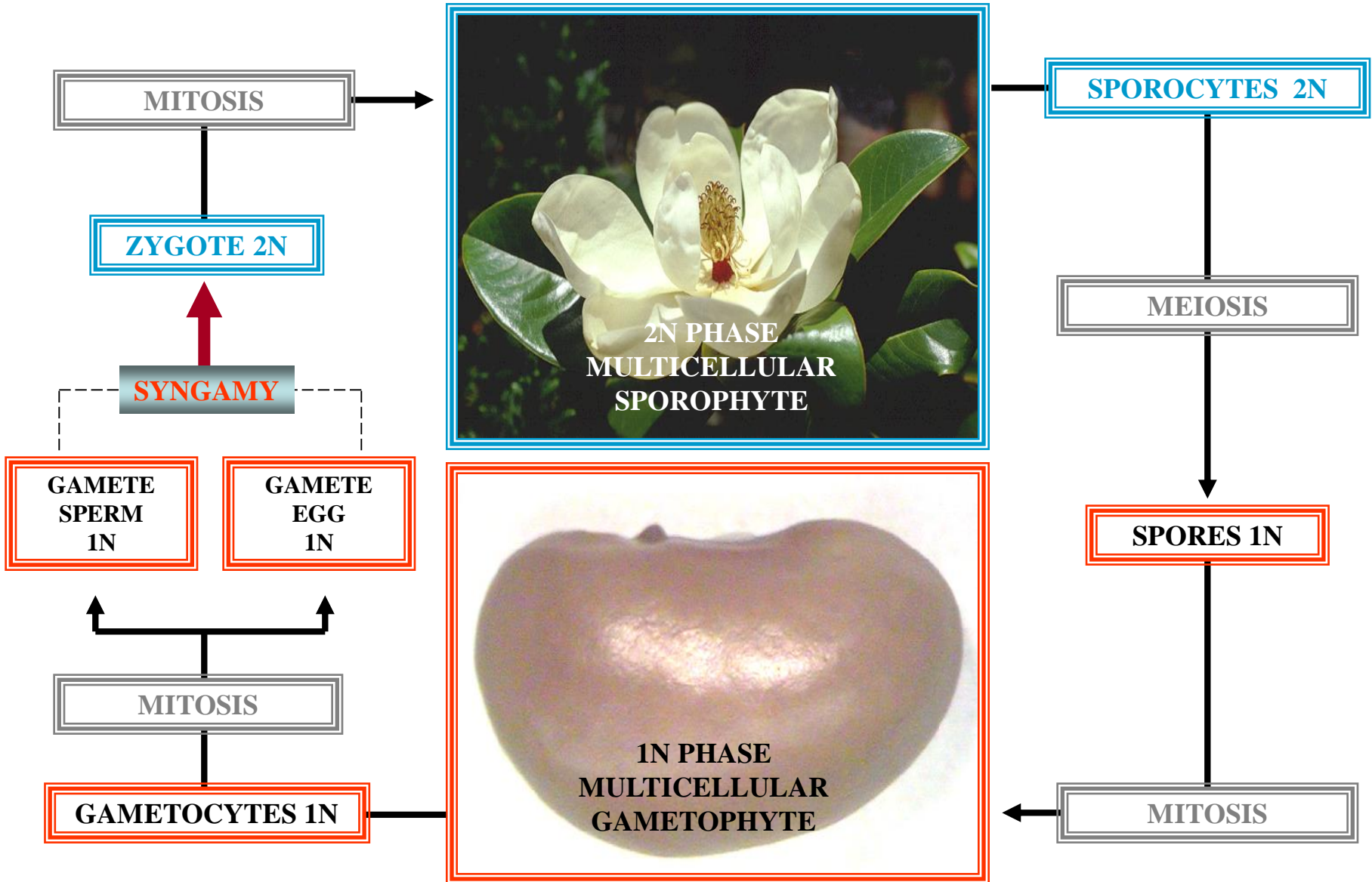




ANGIOSPERM SPORIC LIFE CYCLE



ANGIOSPERM HETEROMORPHIC SPORIC LIFE CYCLE

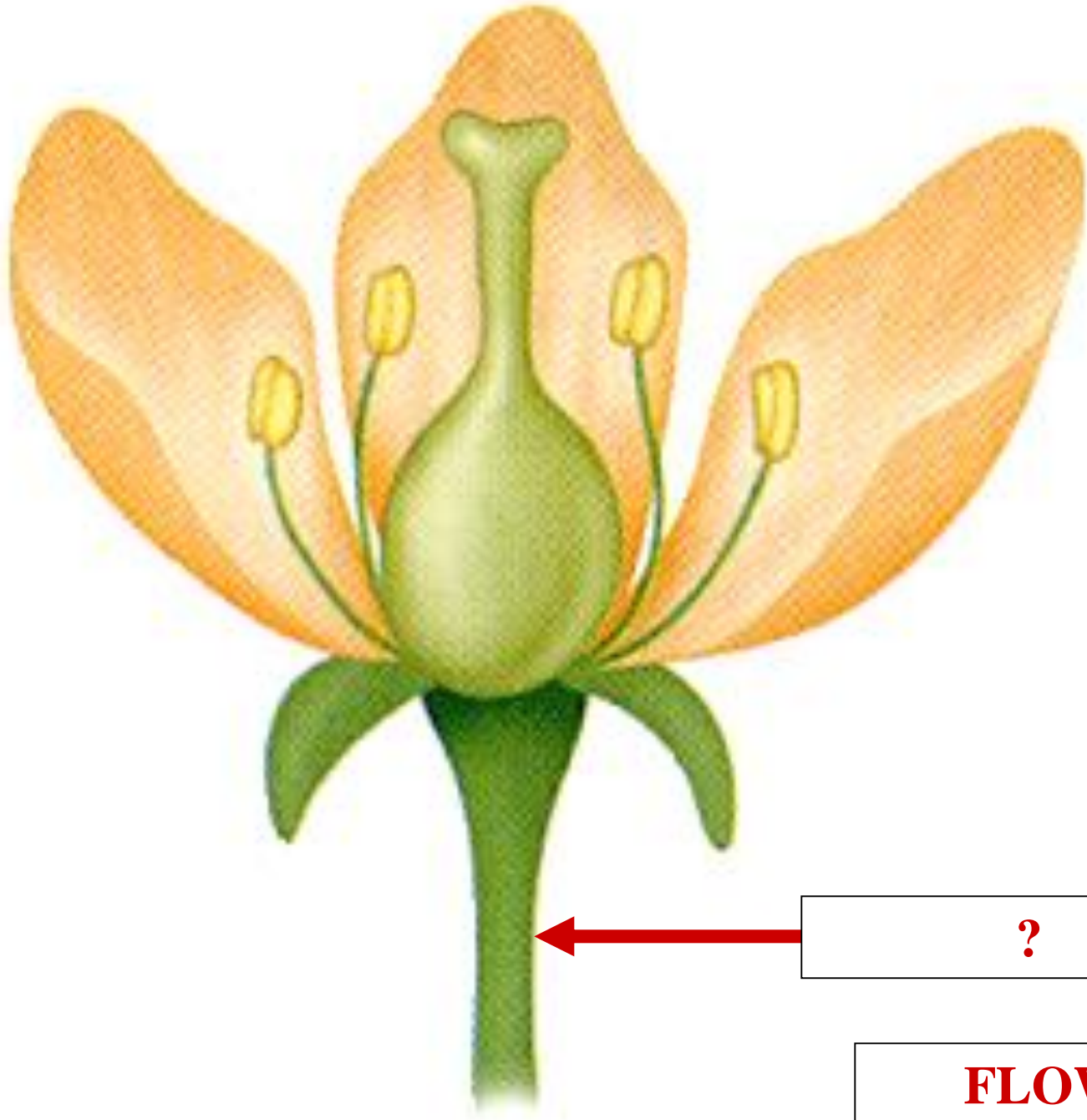




FLOWER MORPHOLOGY REVIEW

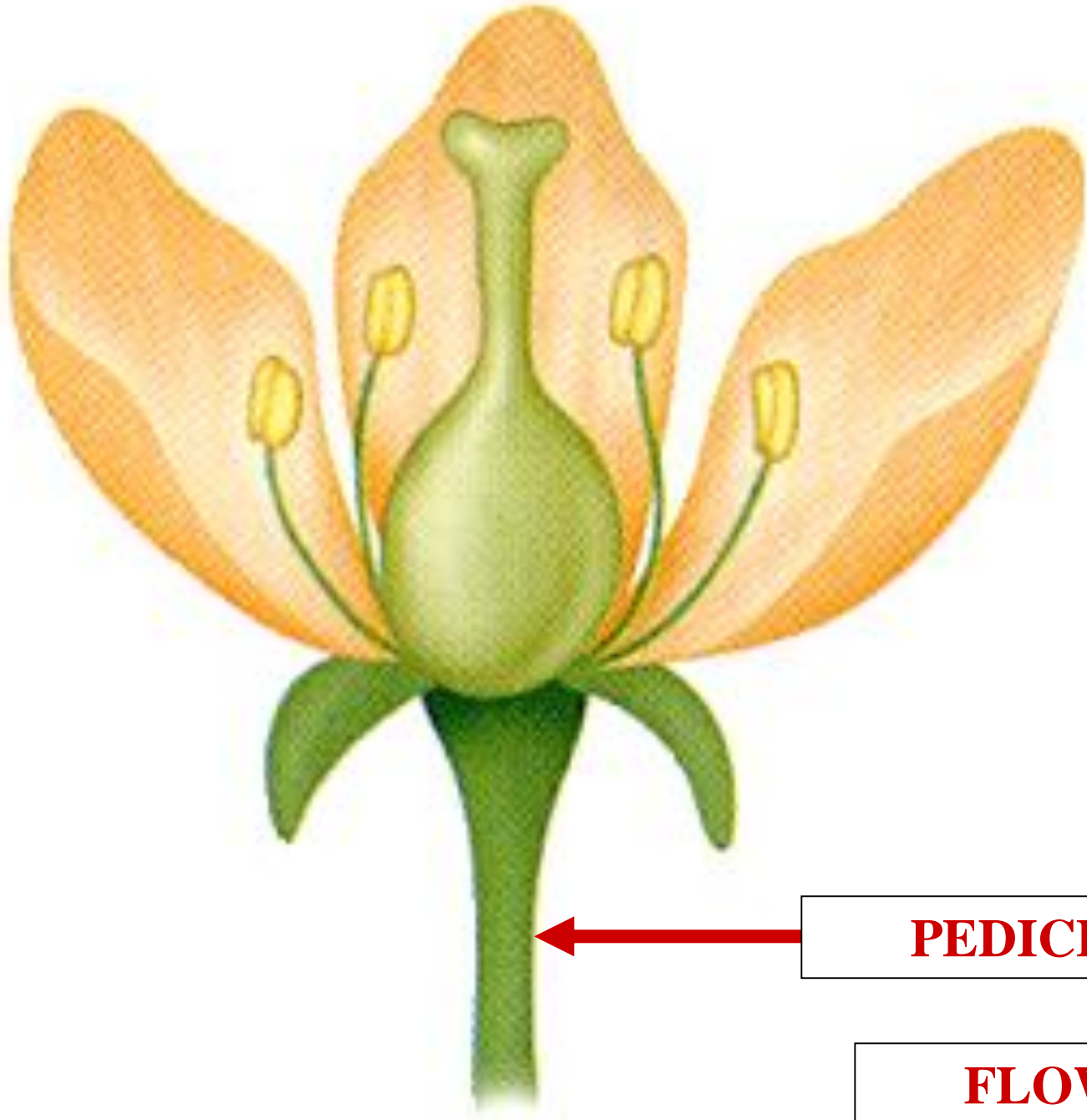


FLOWER



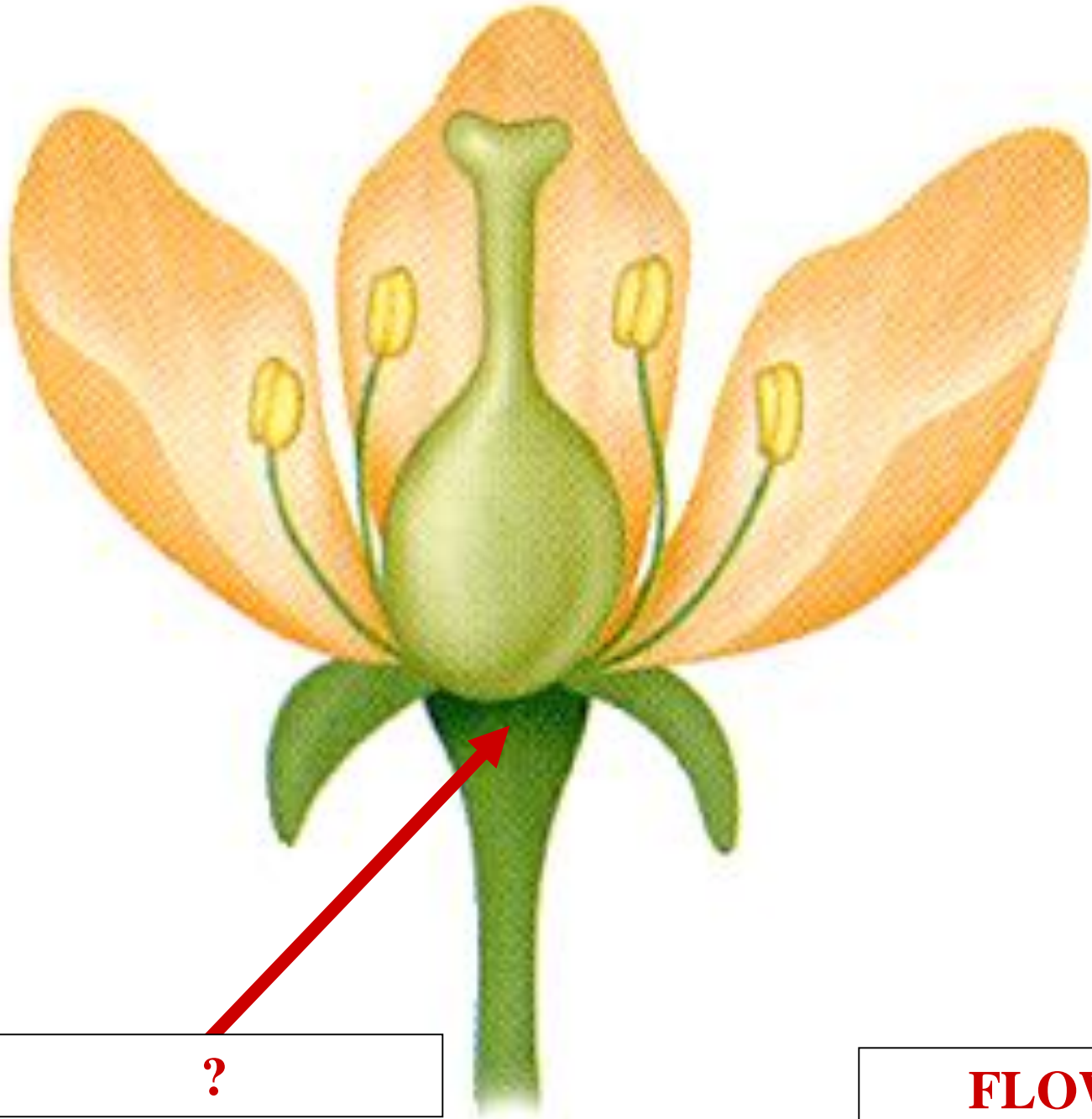
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FLOWER



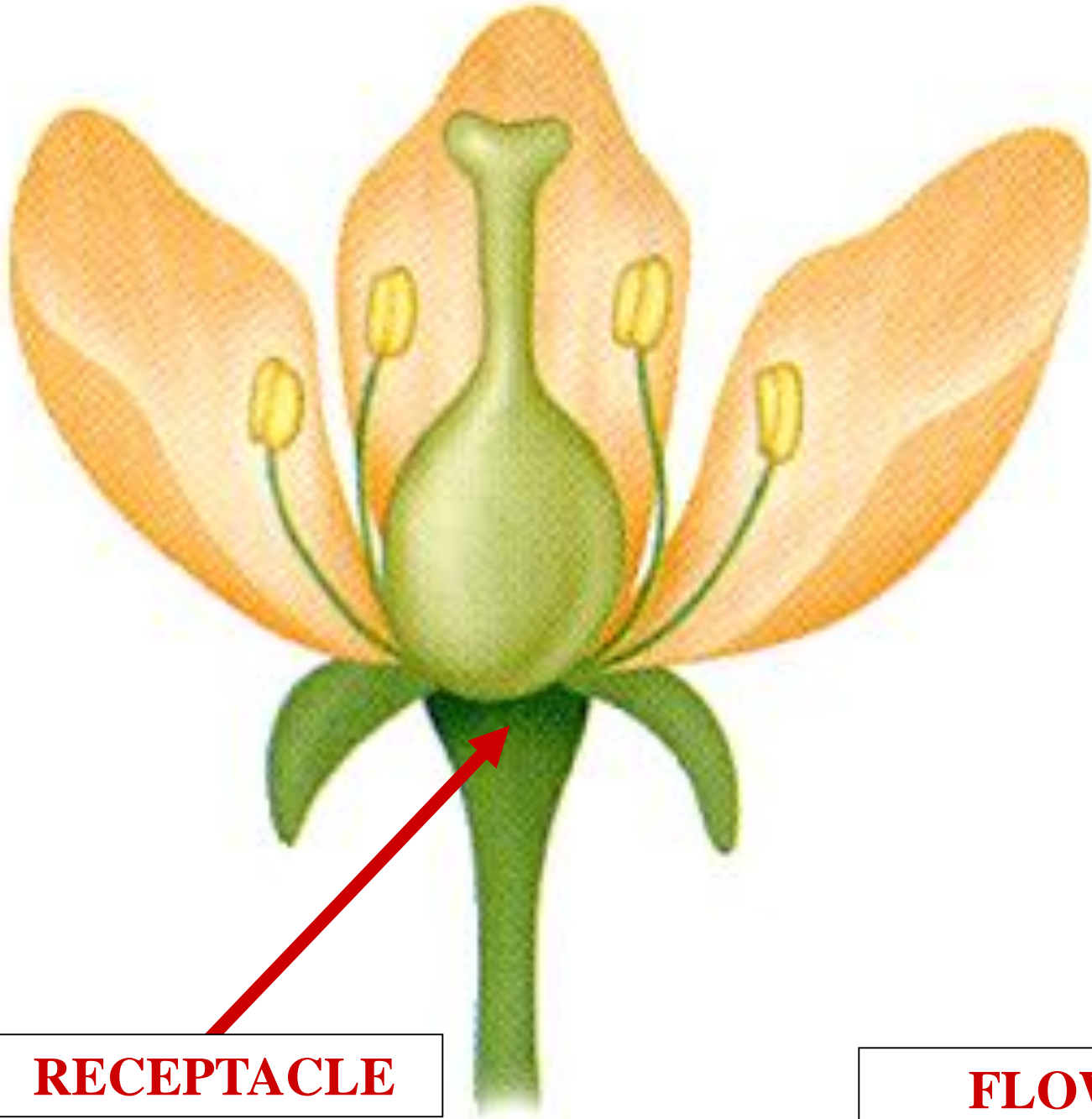
PEDICEL

FLOWER



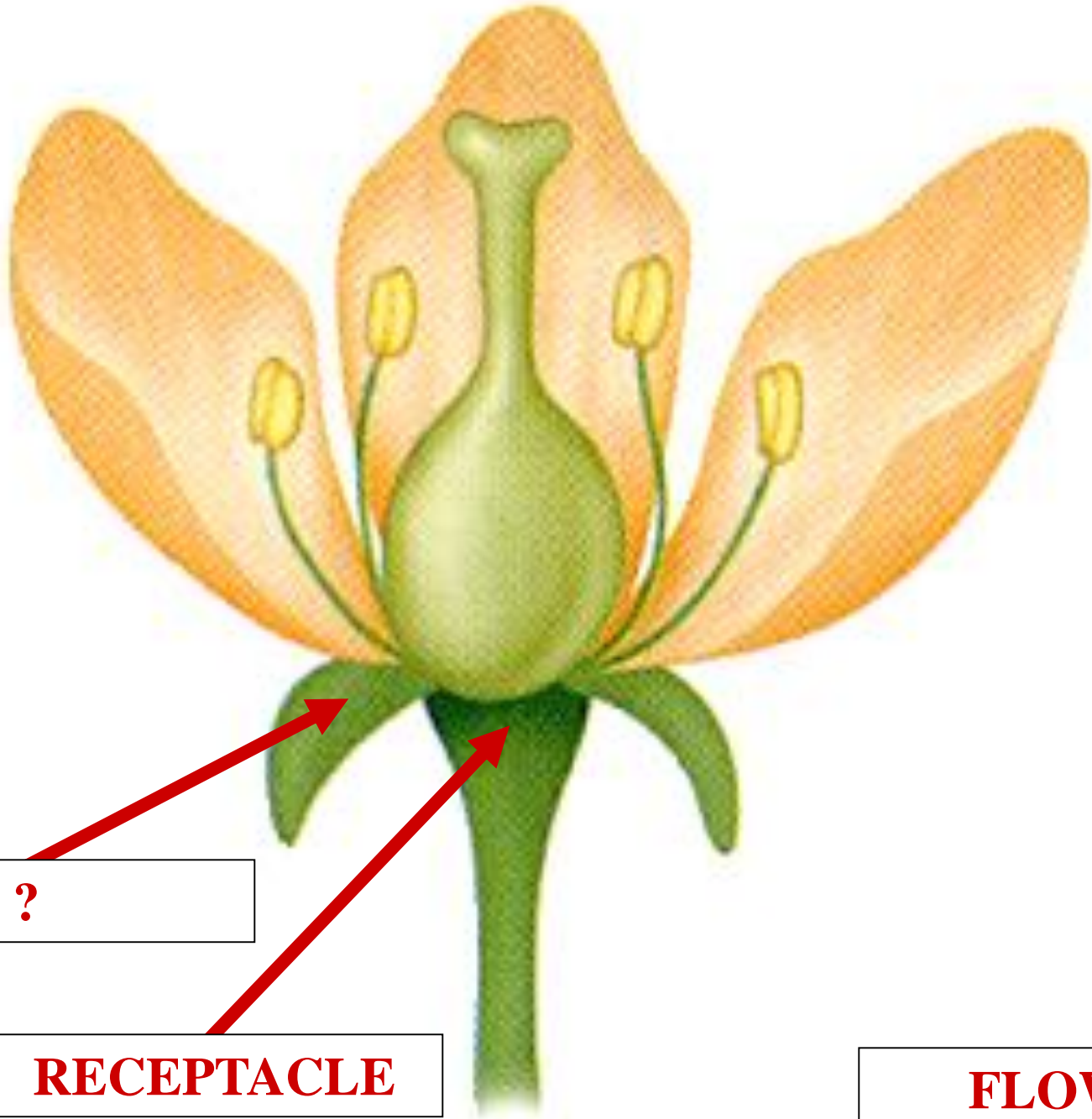
?

FLOWER



RECEPTACLE

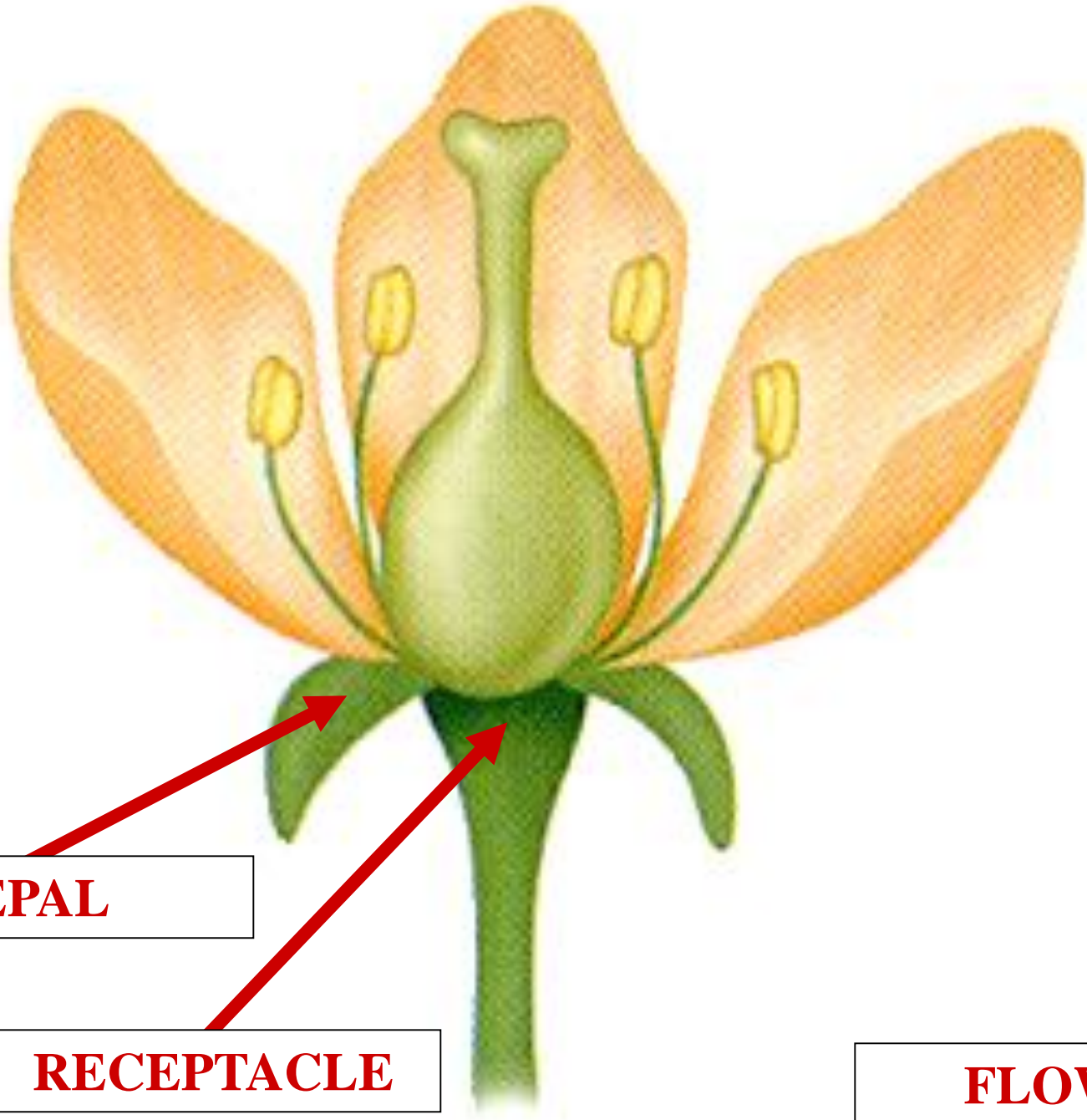
FLOWER



?

RECEPTACLE

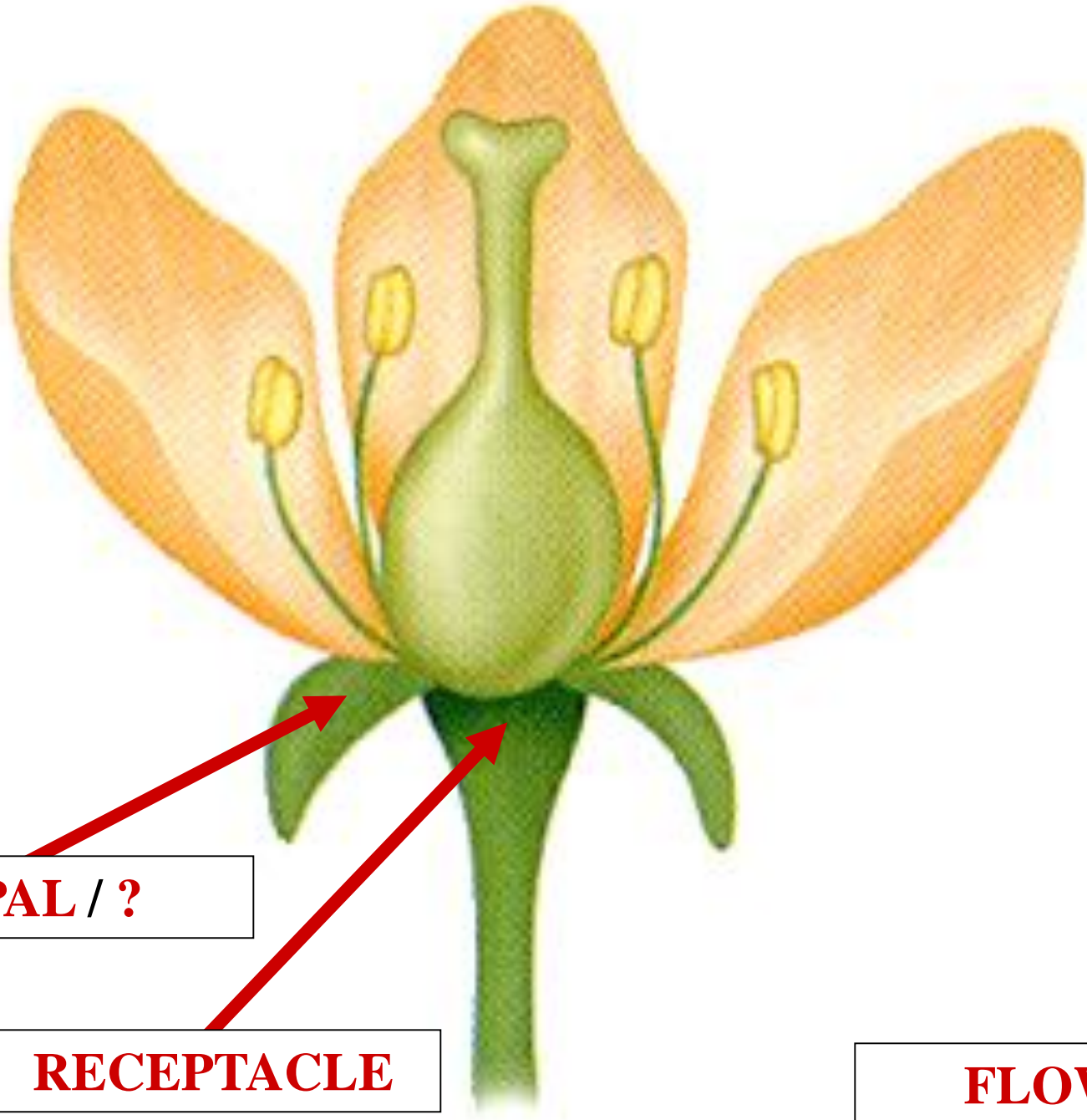
FLOWER



SEPAL

RECEPTACLE

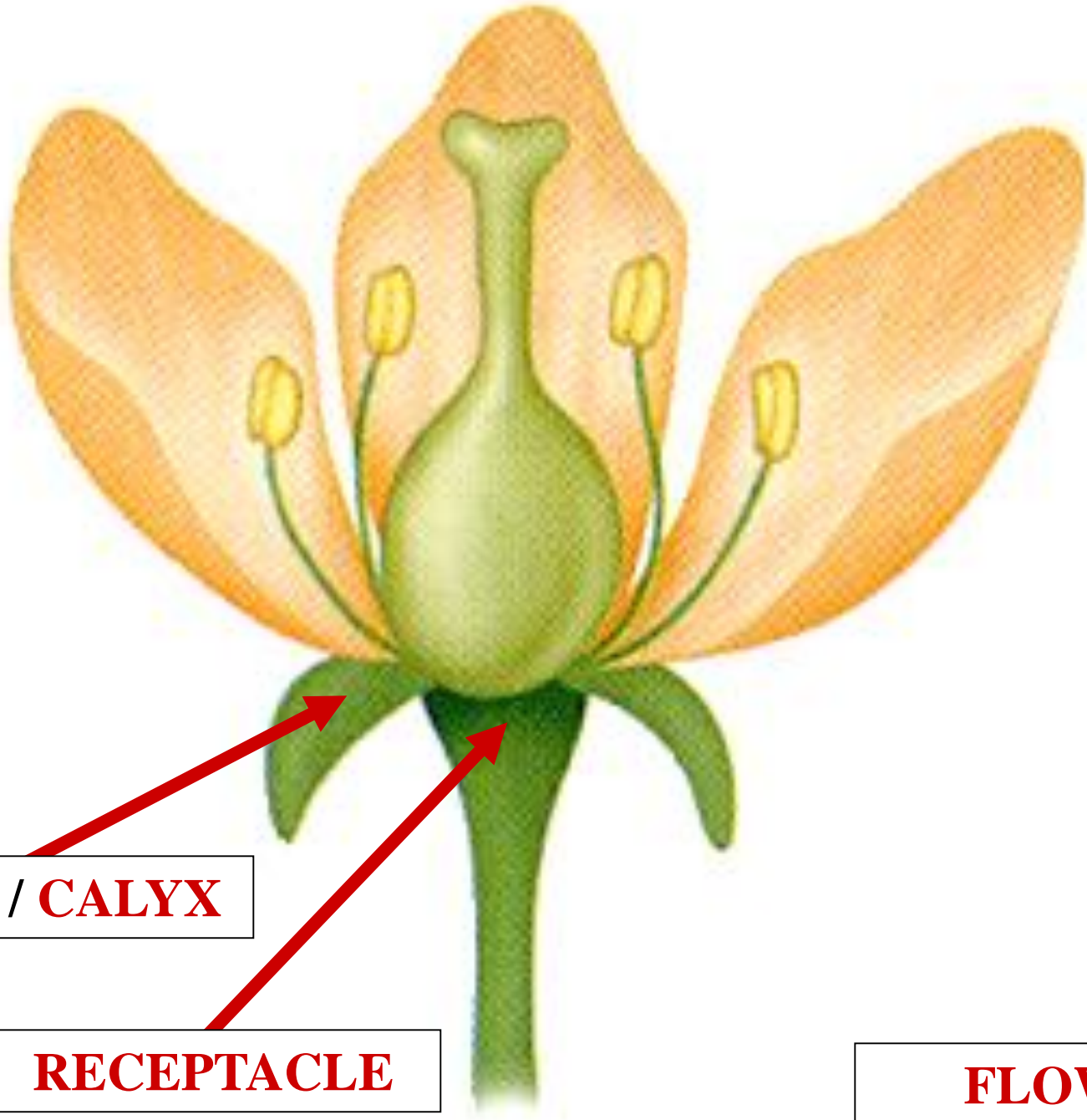
FLOWER



SEPAL / ?

RECEPTACLE

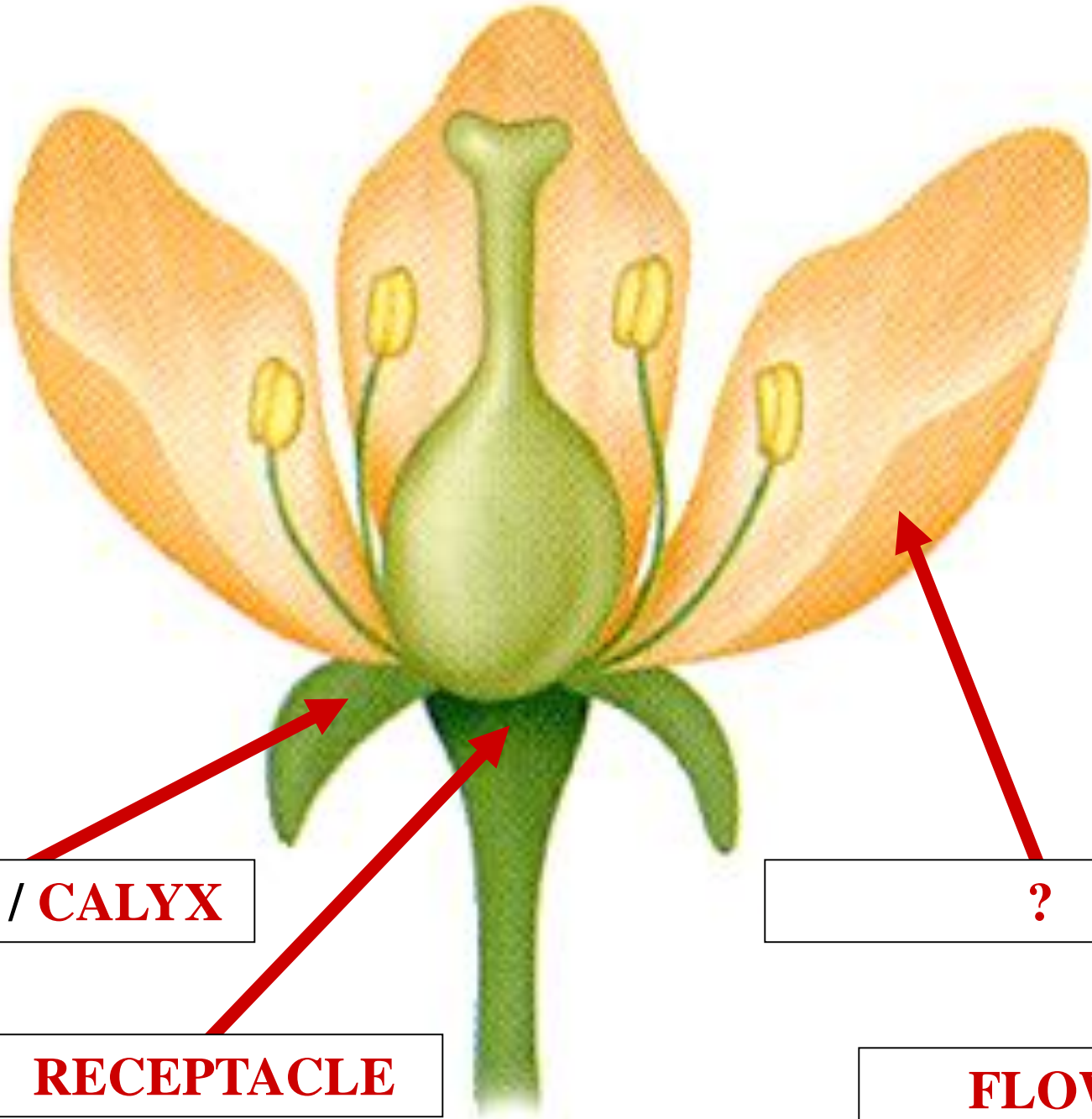
FLOWER



SEPAL / CALYX

RECEPTACLE

FLOWER

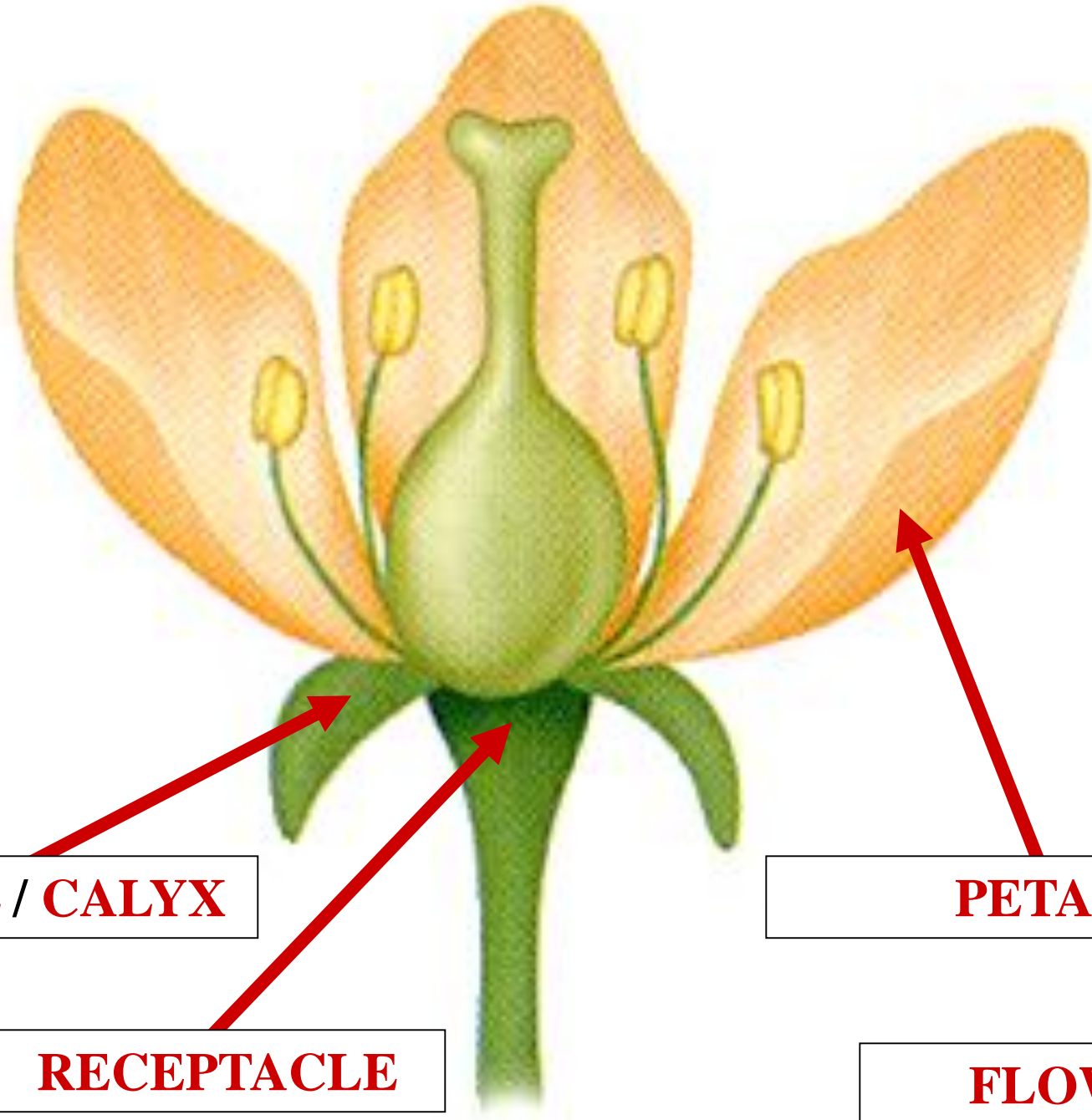


SEPAL / CALYX

RECEPTACLE

?

FLOWER

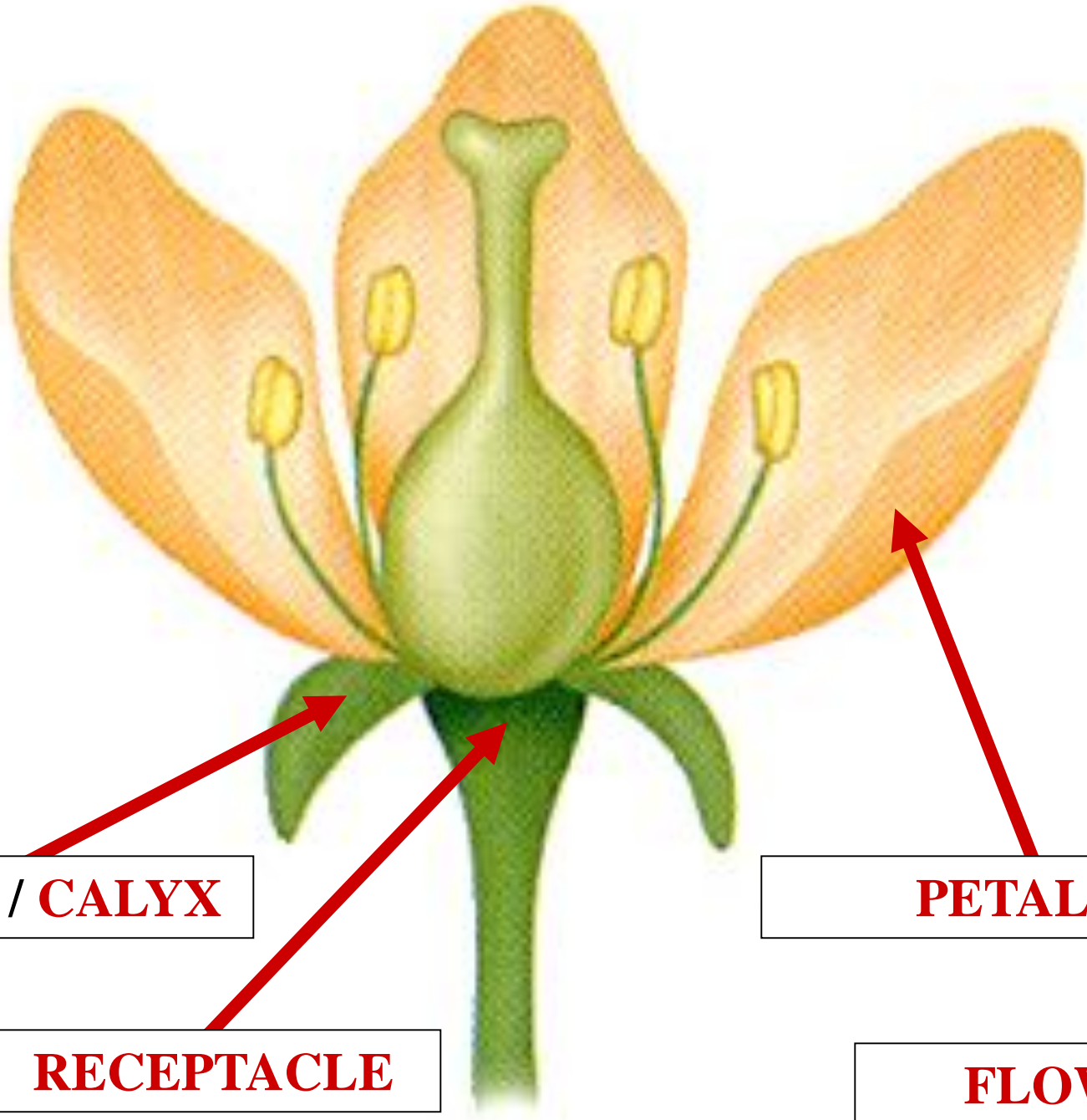


SEPAL / CALYX

PETAL

RECEPTACLE

FLOWER

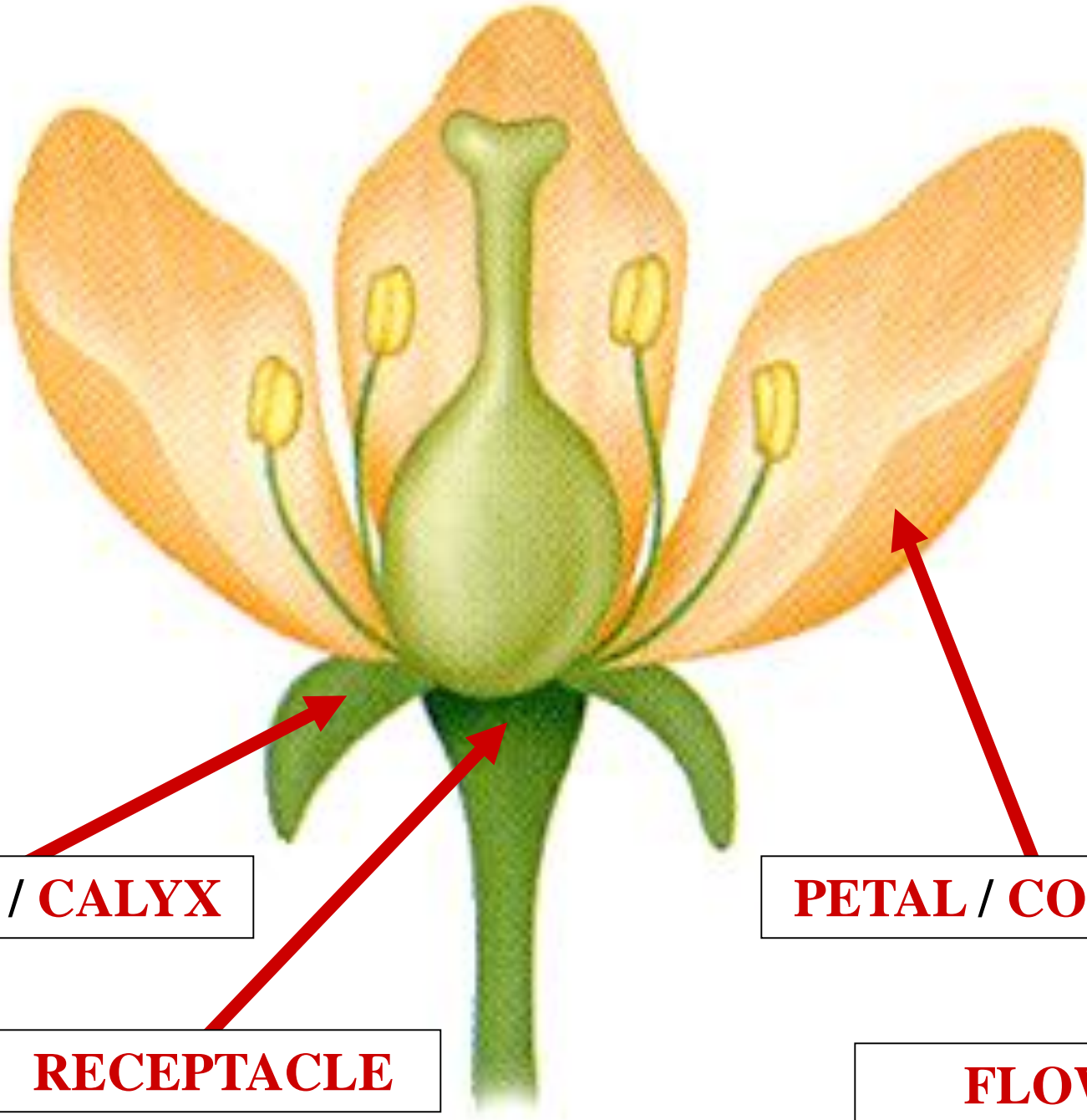


SEPAL / CALYX

RECEPTACLE

PETAL / ?

FLOWER

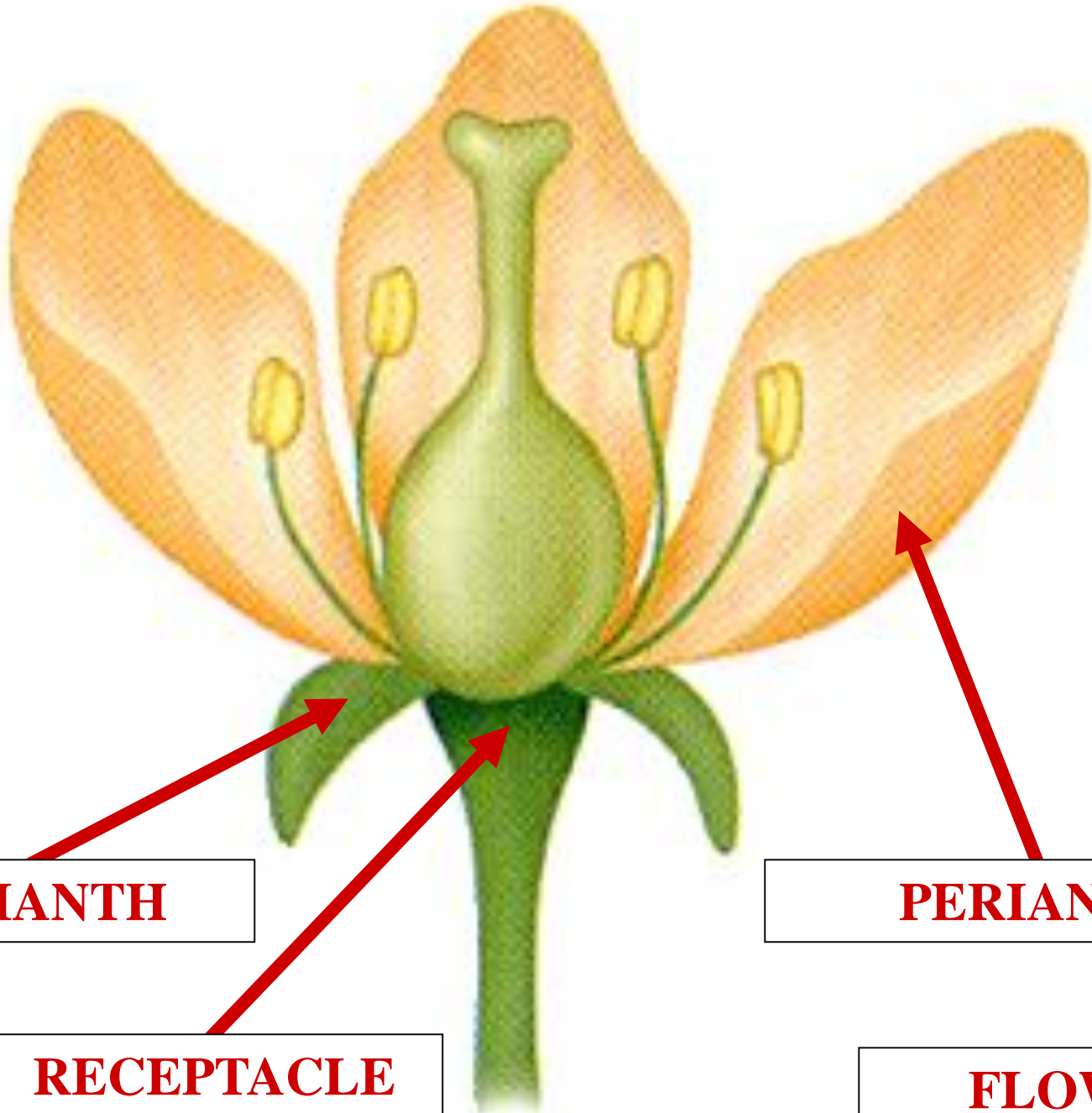


SEPAL / CALYX

RECEPTACLE

PETAL / COROLLA

FLOWER

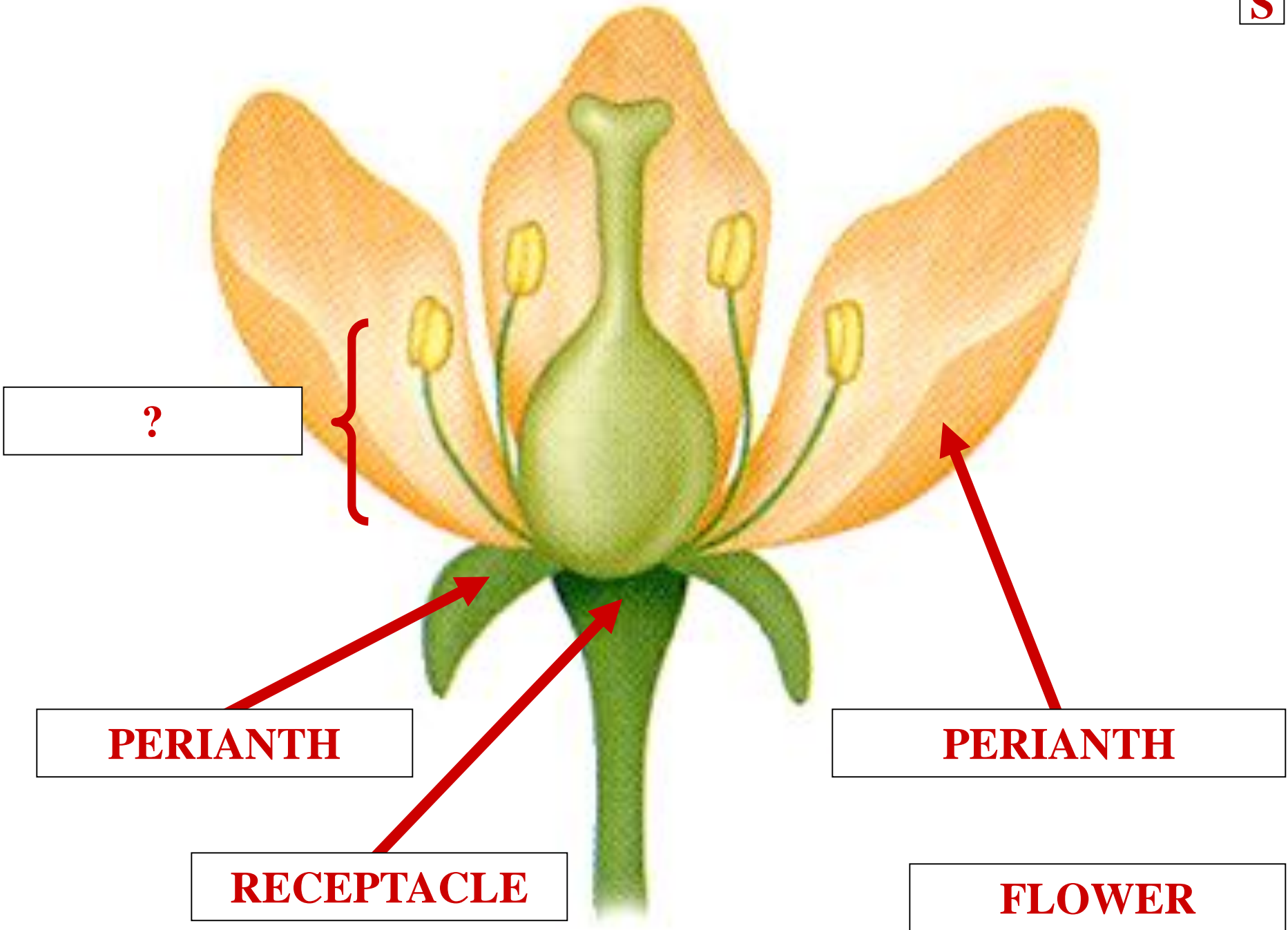


PERIANTH

RECEPTACLE

PERIANTH

FLOWER



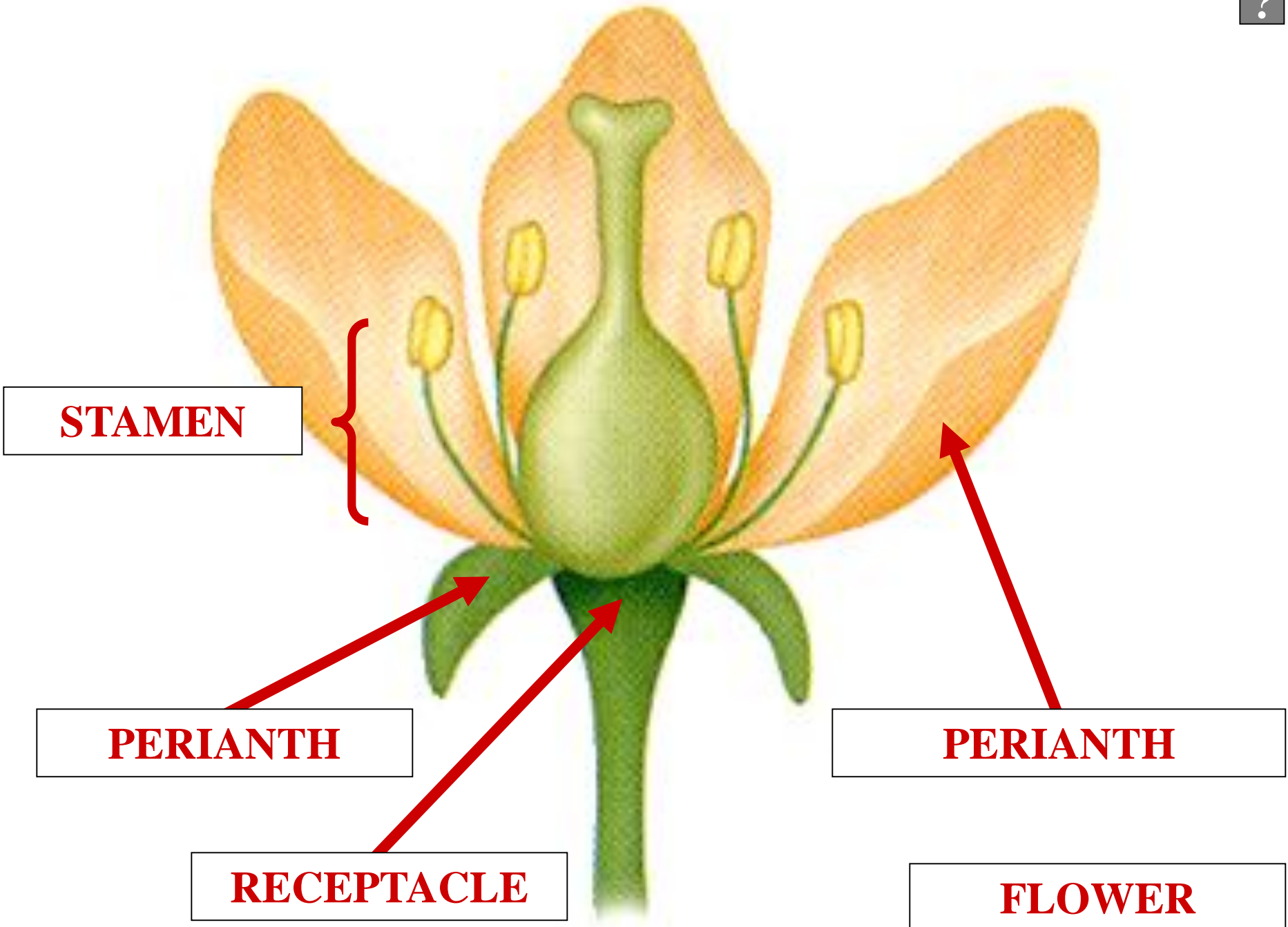
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PERIANTH

RECEPTACLE

PERIANTH

FLOWER



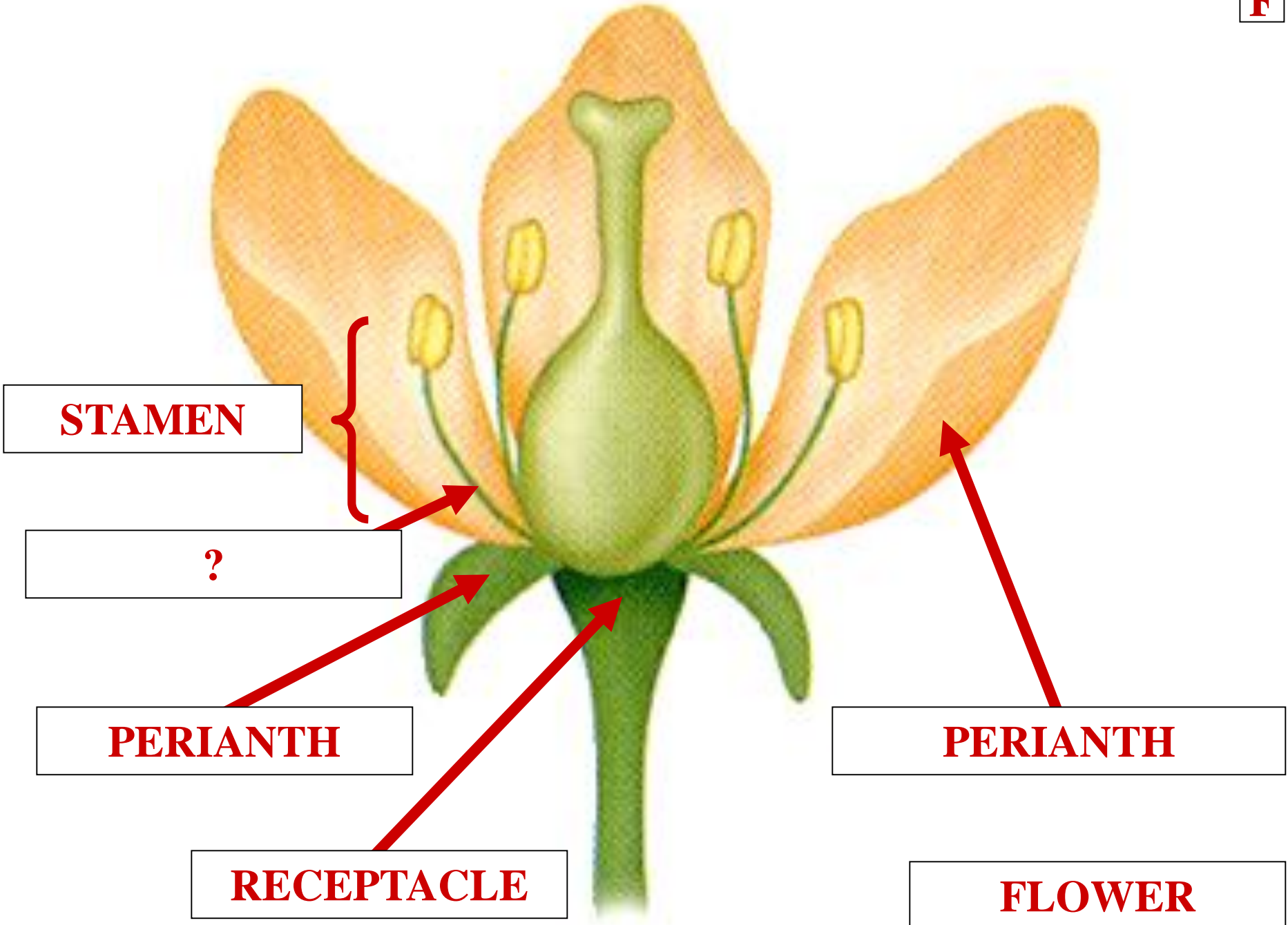
STAMEN

PERIANTH

RECEPTACLE

PERIANTH

FLOWER



STAMEN

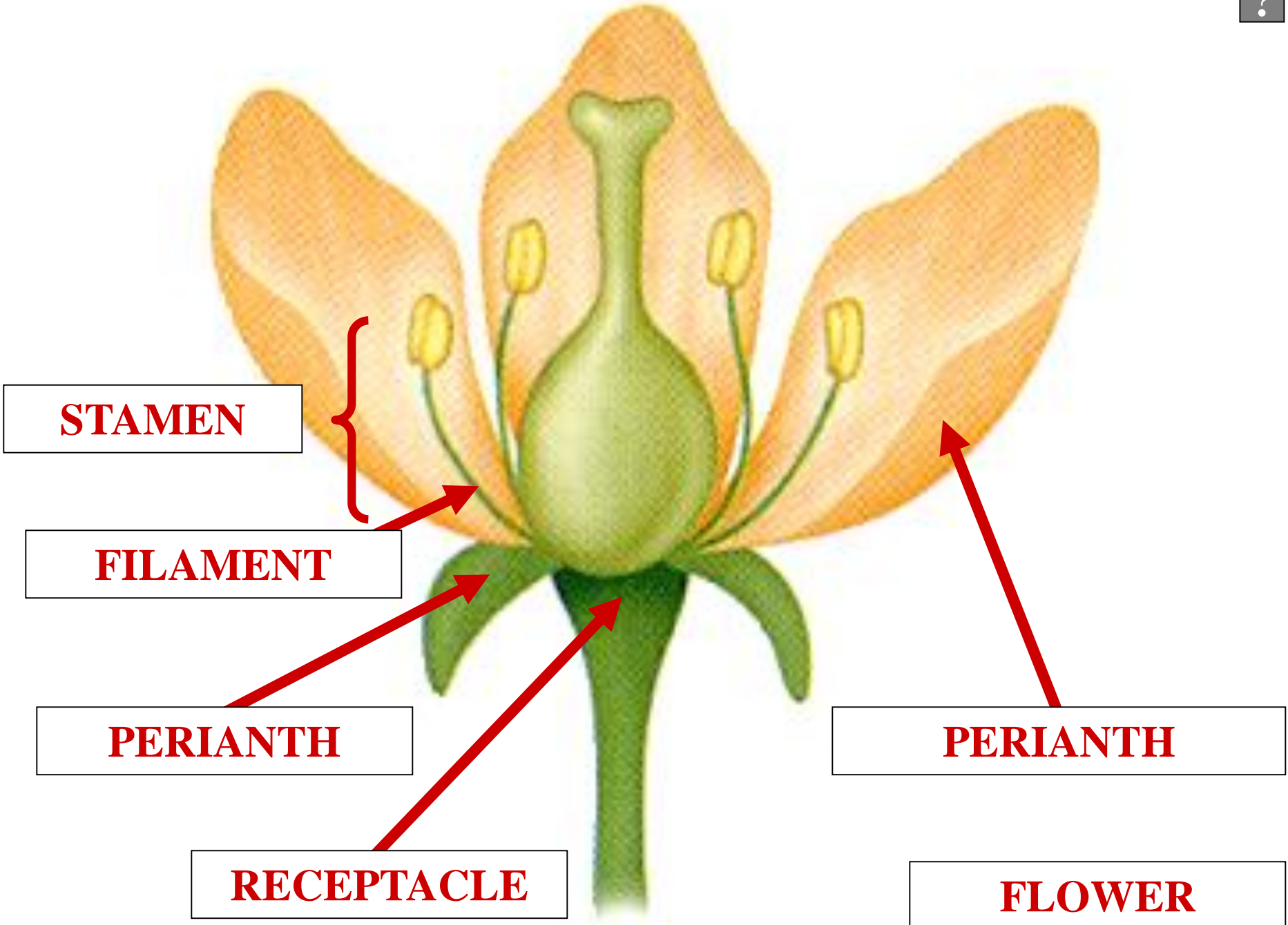
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PERIANTH

RECEPTACLE

PERIANTH

FLOWER



STAMEN

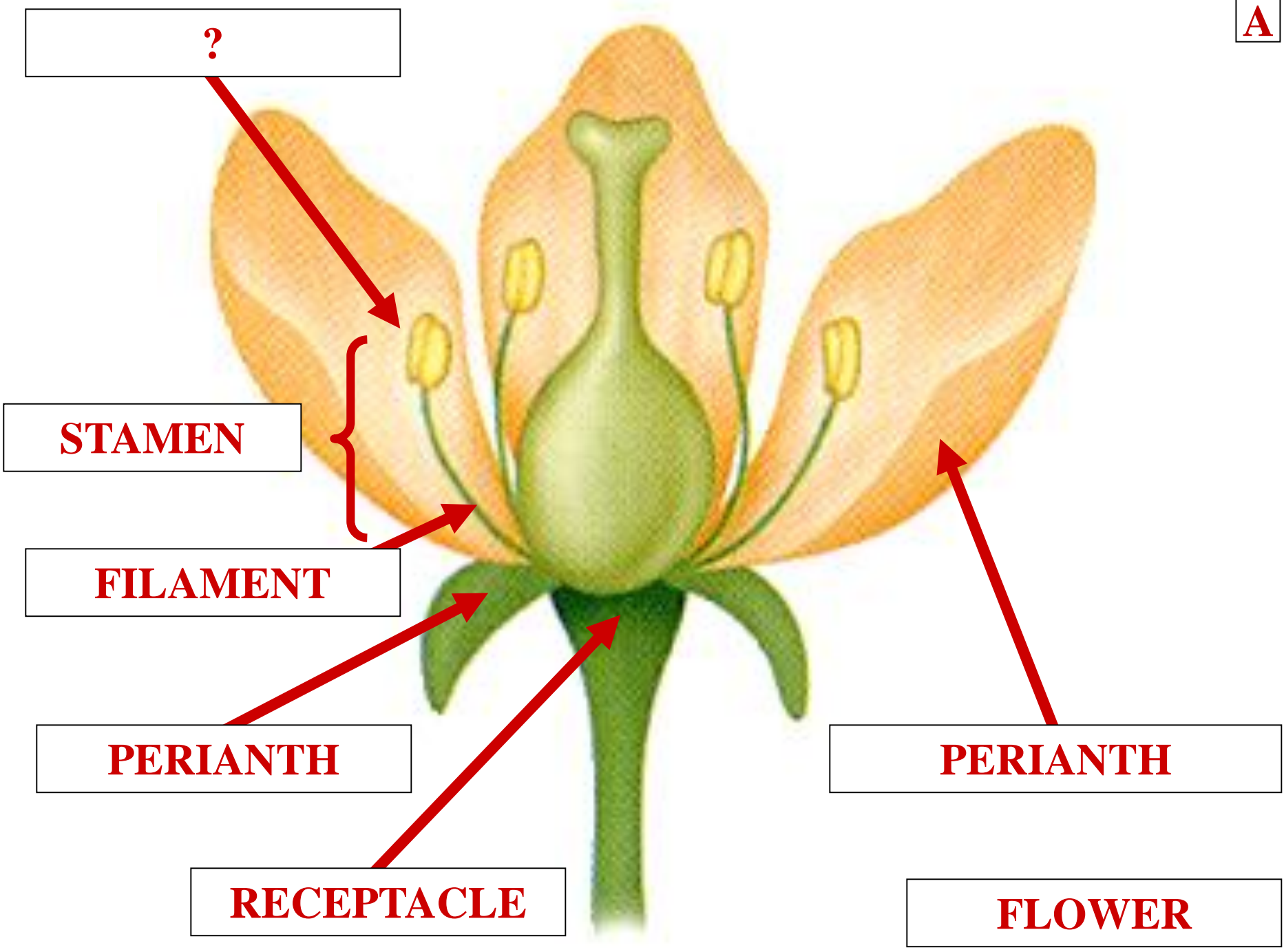
FILAMENT

PERIANTH

RECEPTACLE

PERIANTH

FLOWER



?

STAMEN

FILAMENT

PERIANTH

RECEPTACLE

PERIANTH

FLOWER

ANTHER

STAMEN

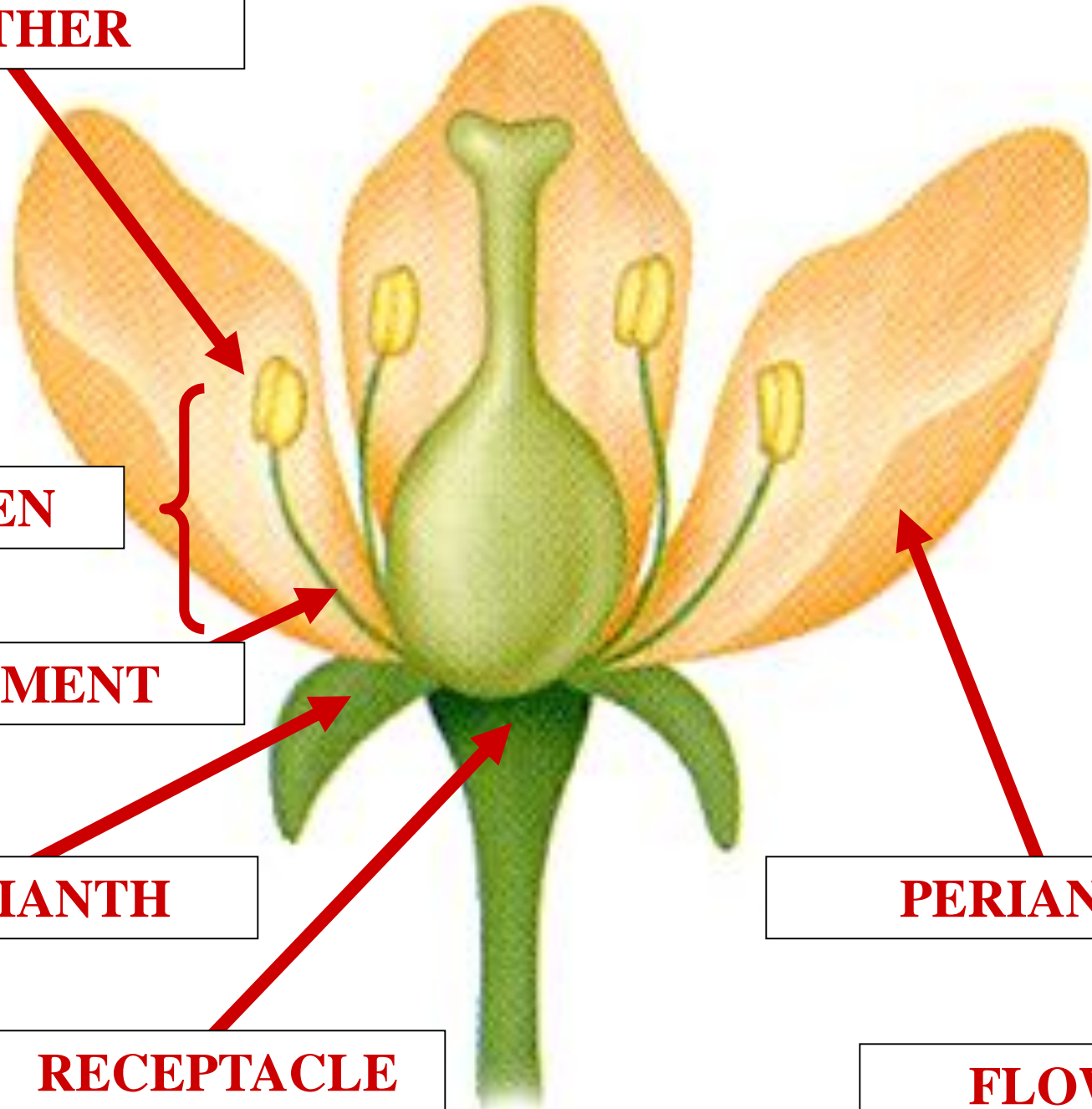
FILAMENT

PERIANTH

RECEPTACLE

PERIANTH

FLOWER



ANTHER

?

STAMEN

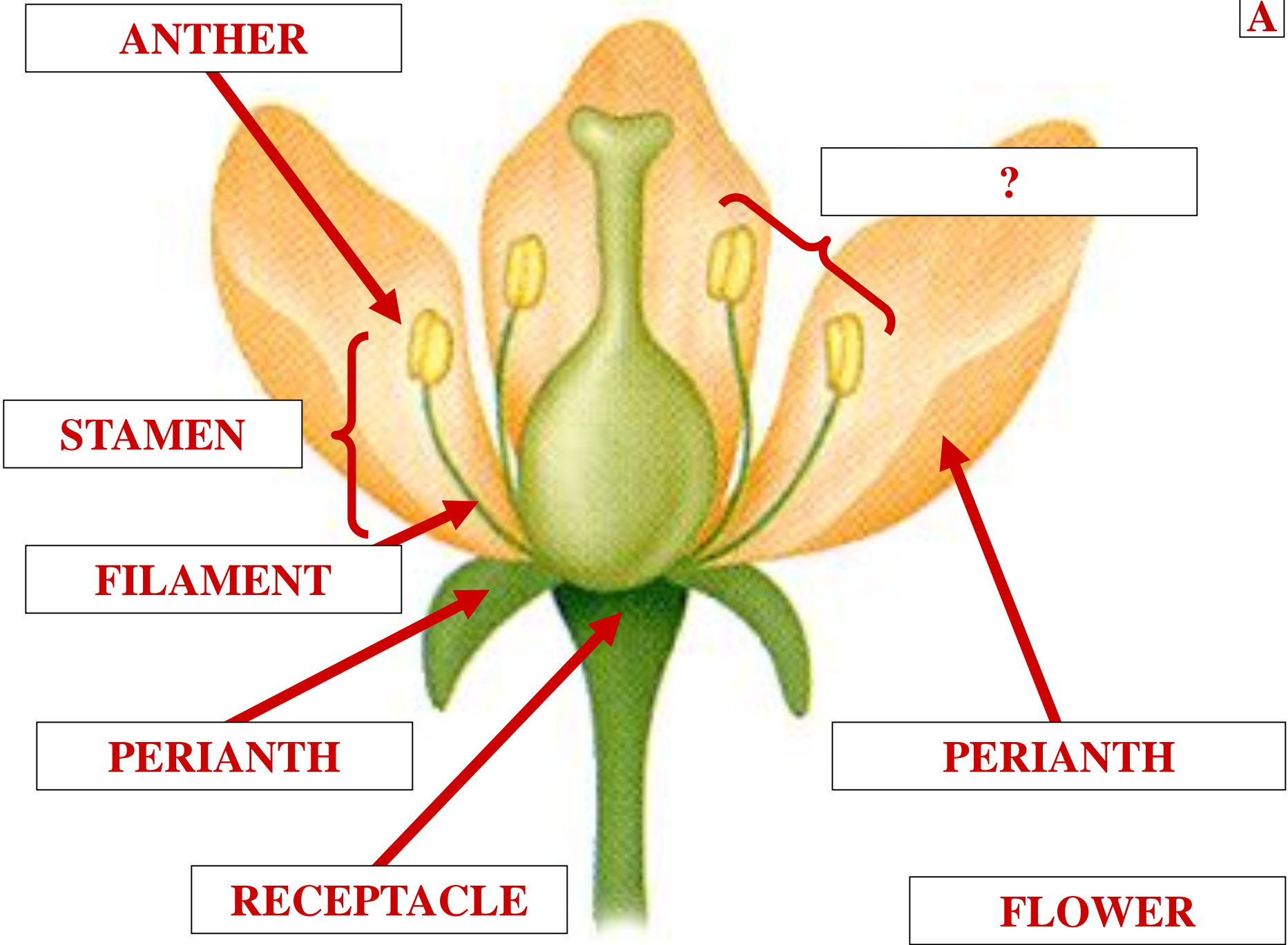
FILAMENT

PERIANTH

RECEPTACLE

PERIANTH

FLOWER



ANTHER

ANDROECIUM

STAMEN

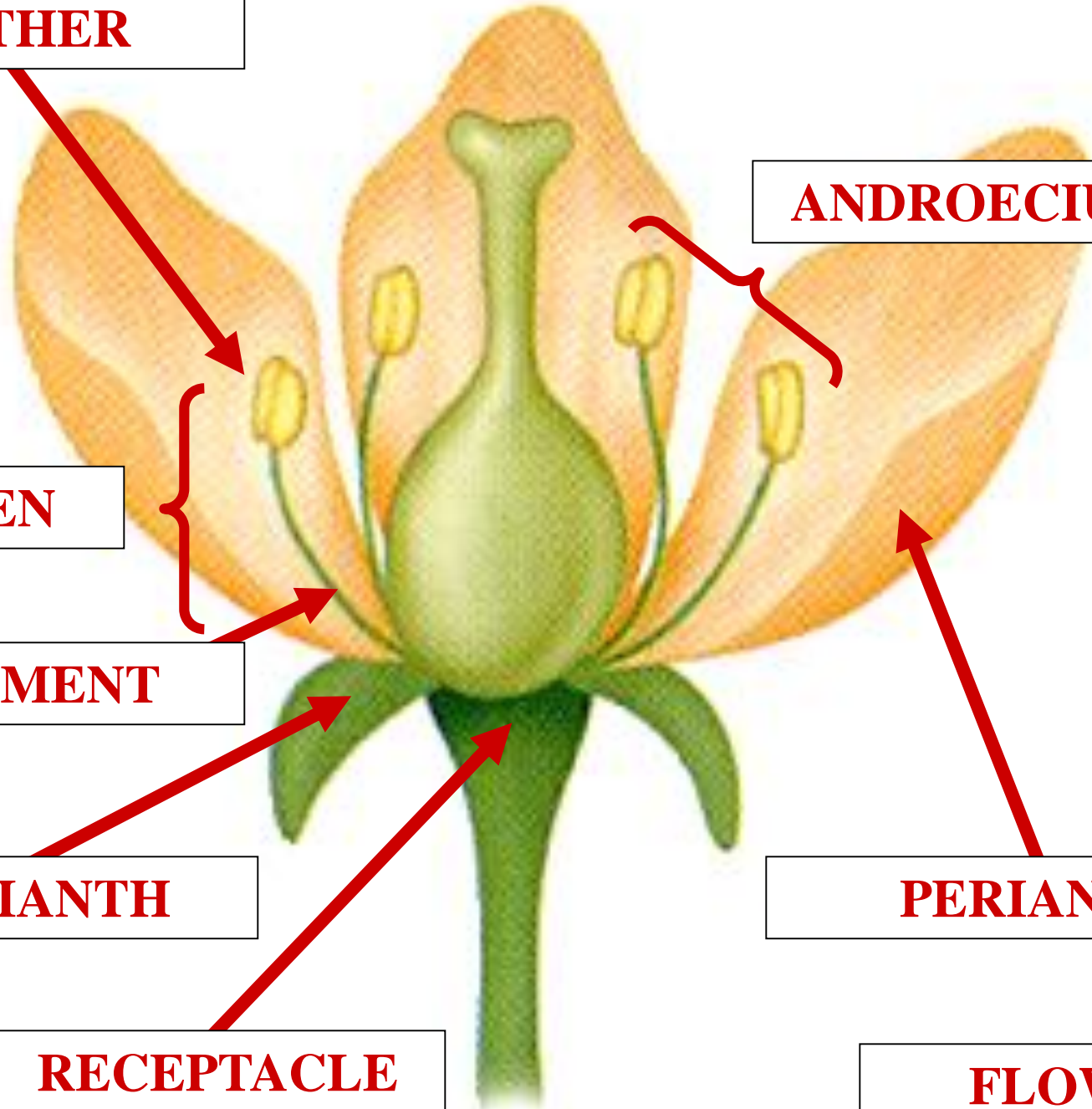
FILAMENT

PERIANTH

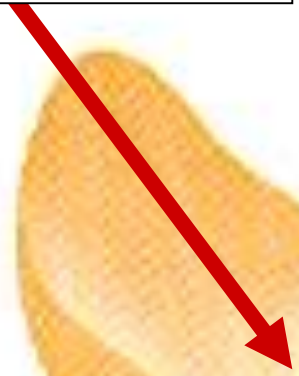
RECEPTACLE

PERIANTH

FLOWER



ANTHER



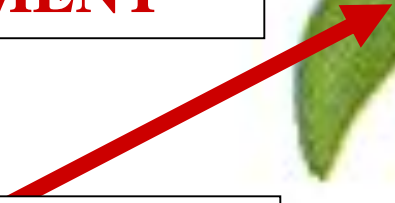
STAMEN



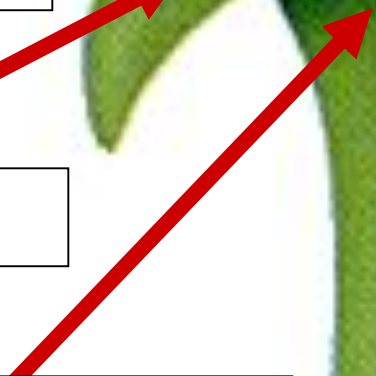
FILAMENT



PERIANTH



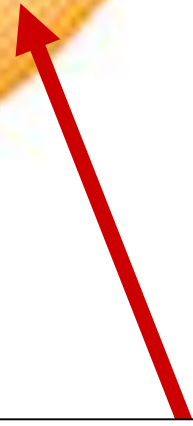
RECEPTACLE



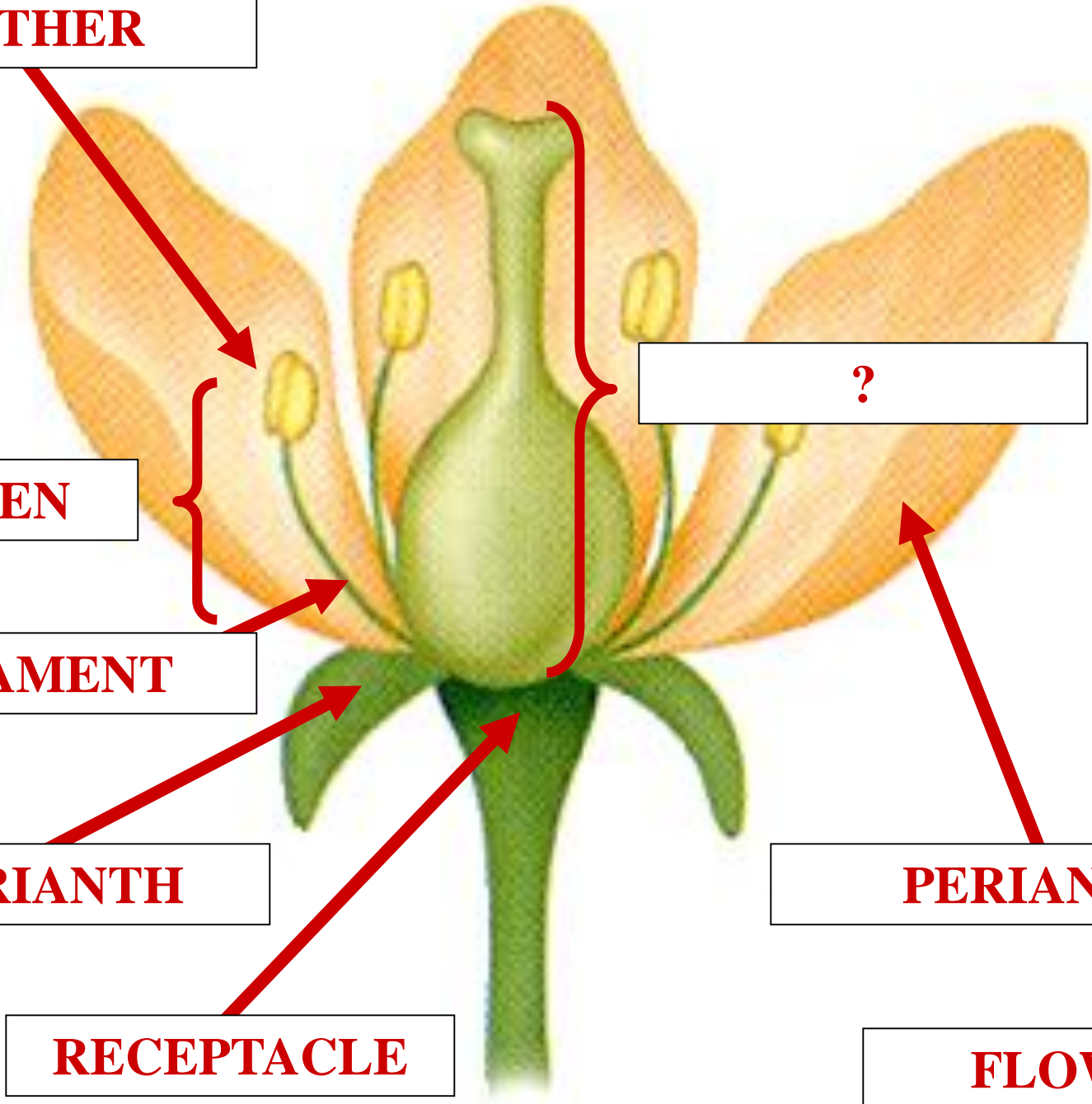
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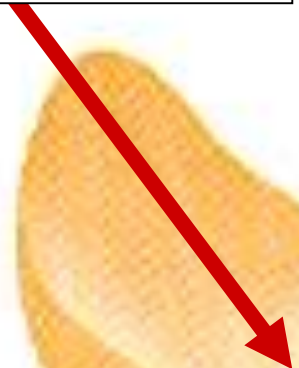
PERIANTH



FLOWER



ANTHER



STAMEN



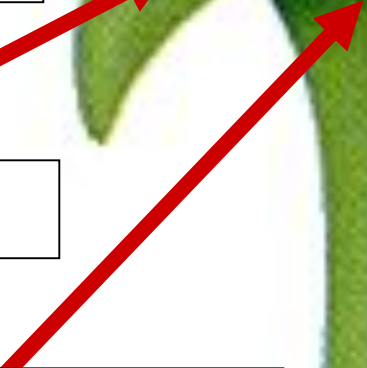
FILAMENT



PERIANTH



RECEPTACLE



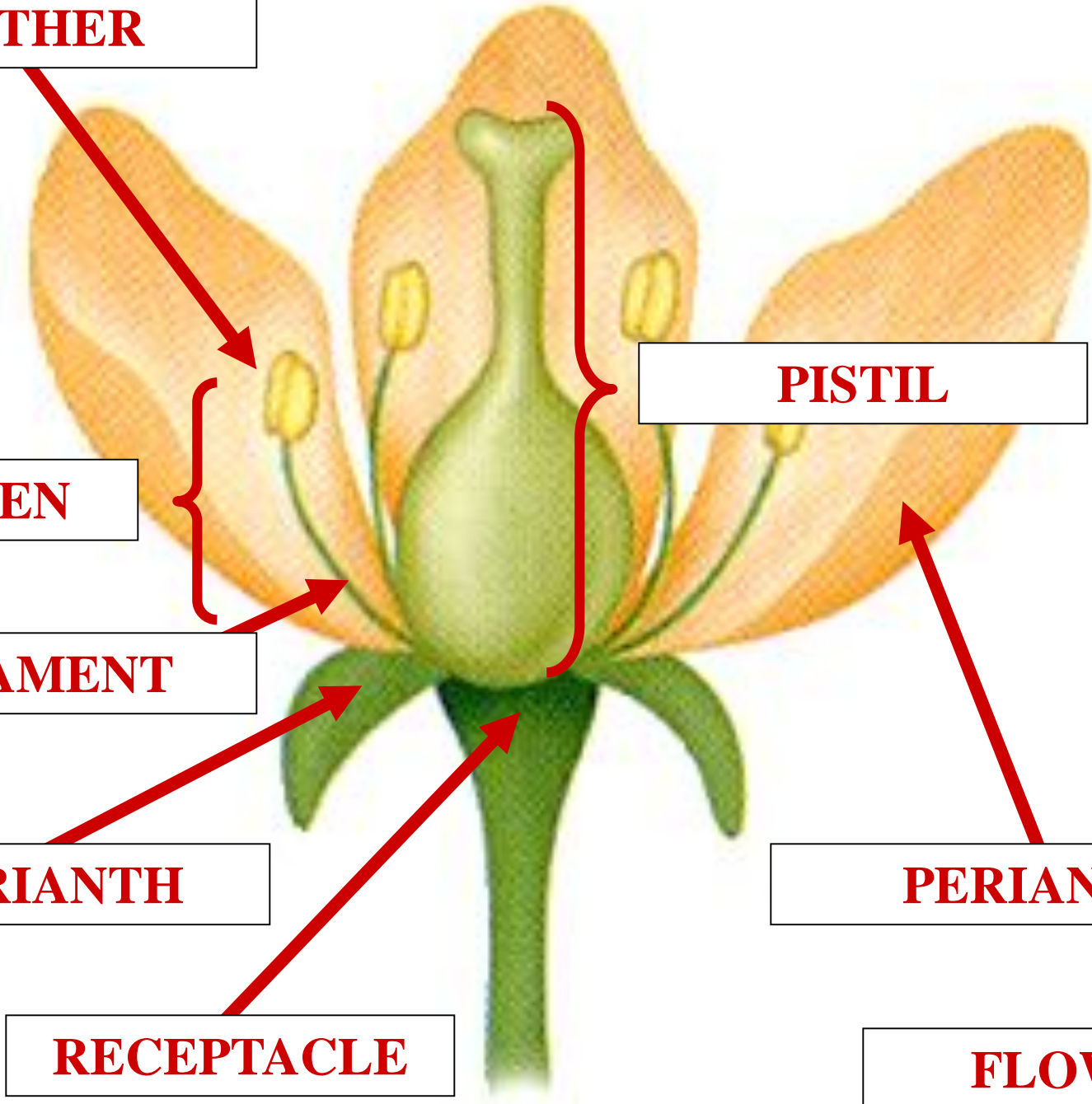
PISTIL



PERIANTH



FLOWER



ANTHER

?

STAMEN

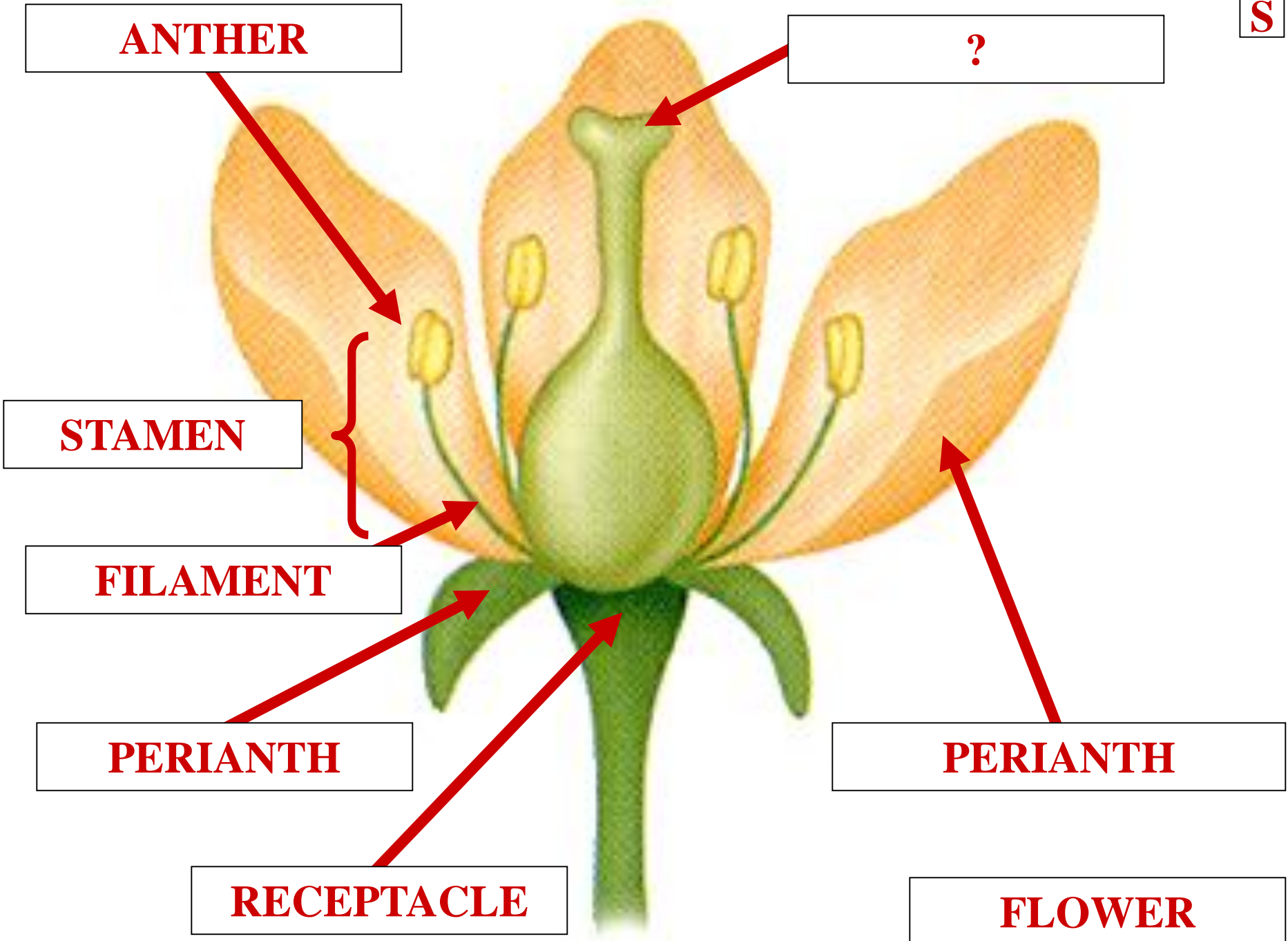
FILAMENT

PERIANTH

RECEPTACLE

PERIANTH

FLOWER



ANTHER

STIGMA

STAMEN

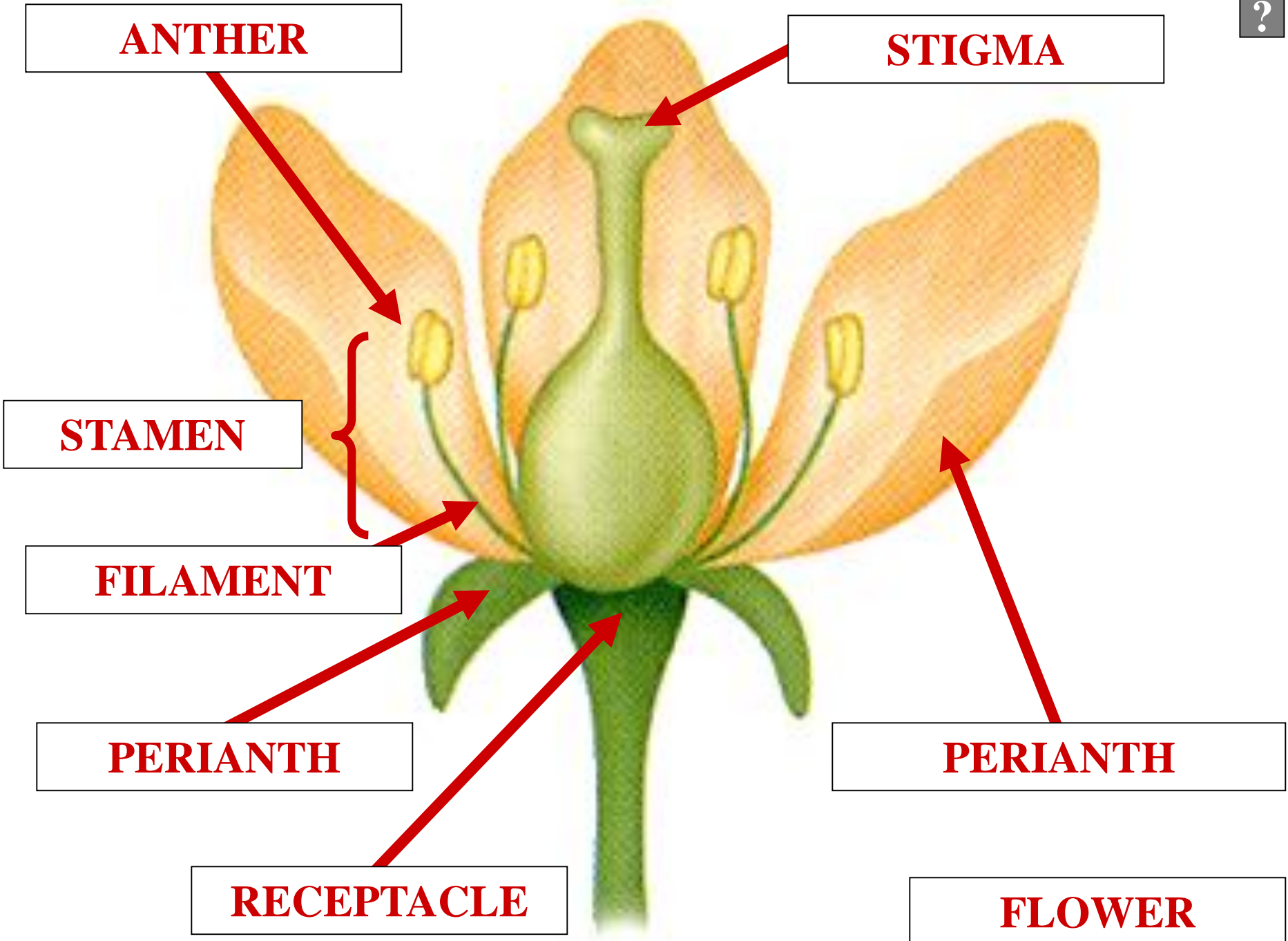
FILAMENT

PERIANTH

RECEPTACLE

PERIANTH

FLOWER



ANTHER

STIGMA

?

STAMEN

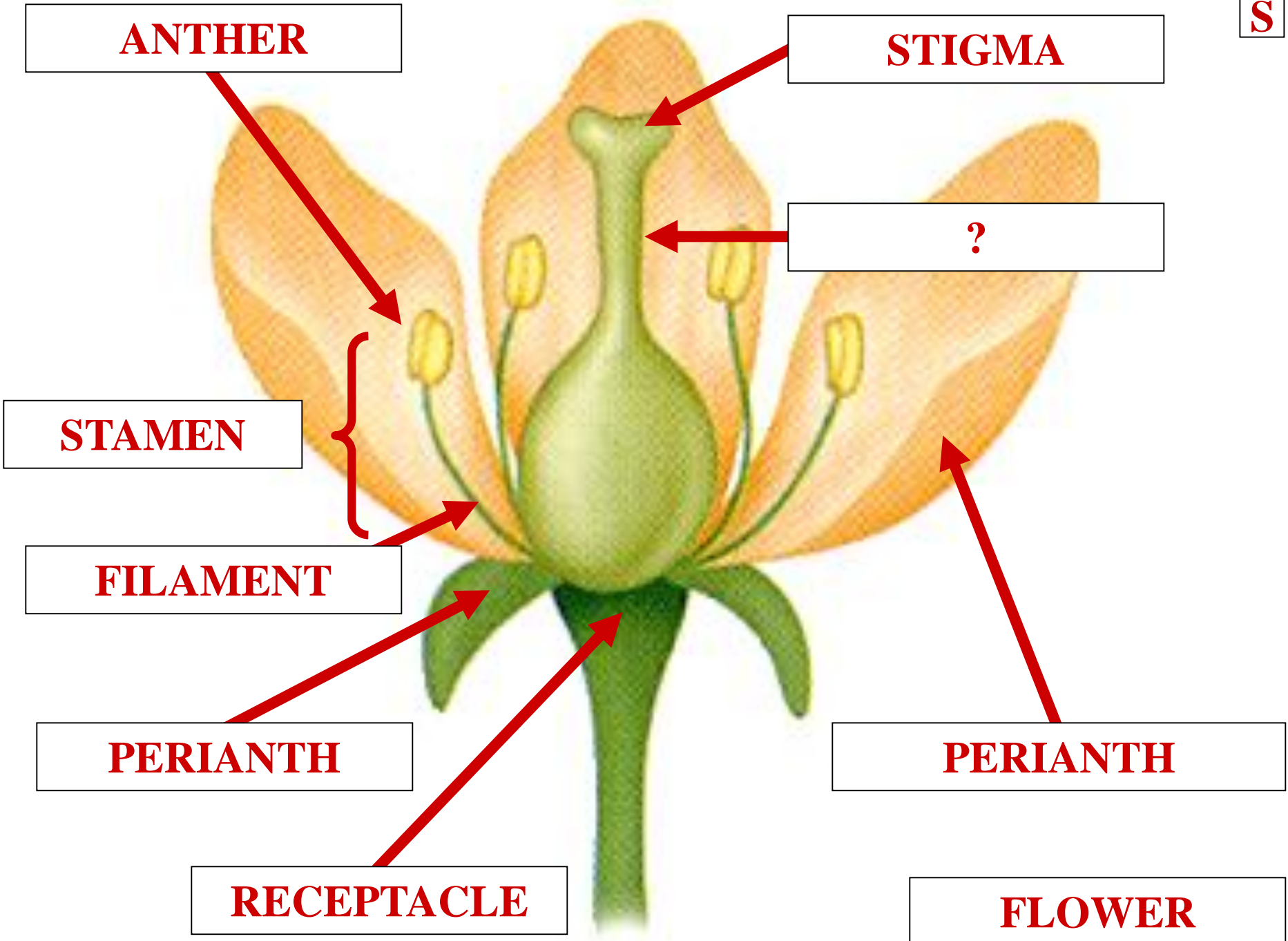
FILAMENT

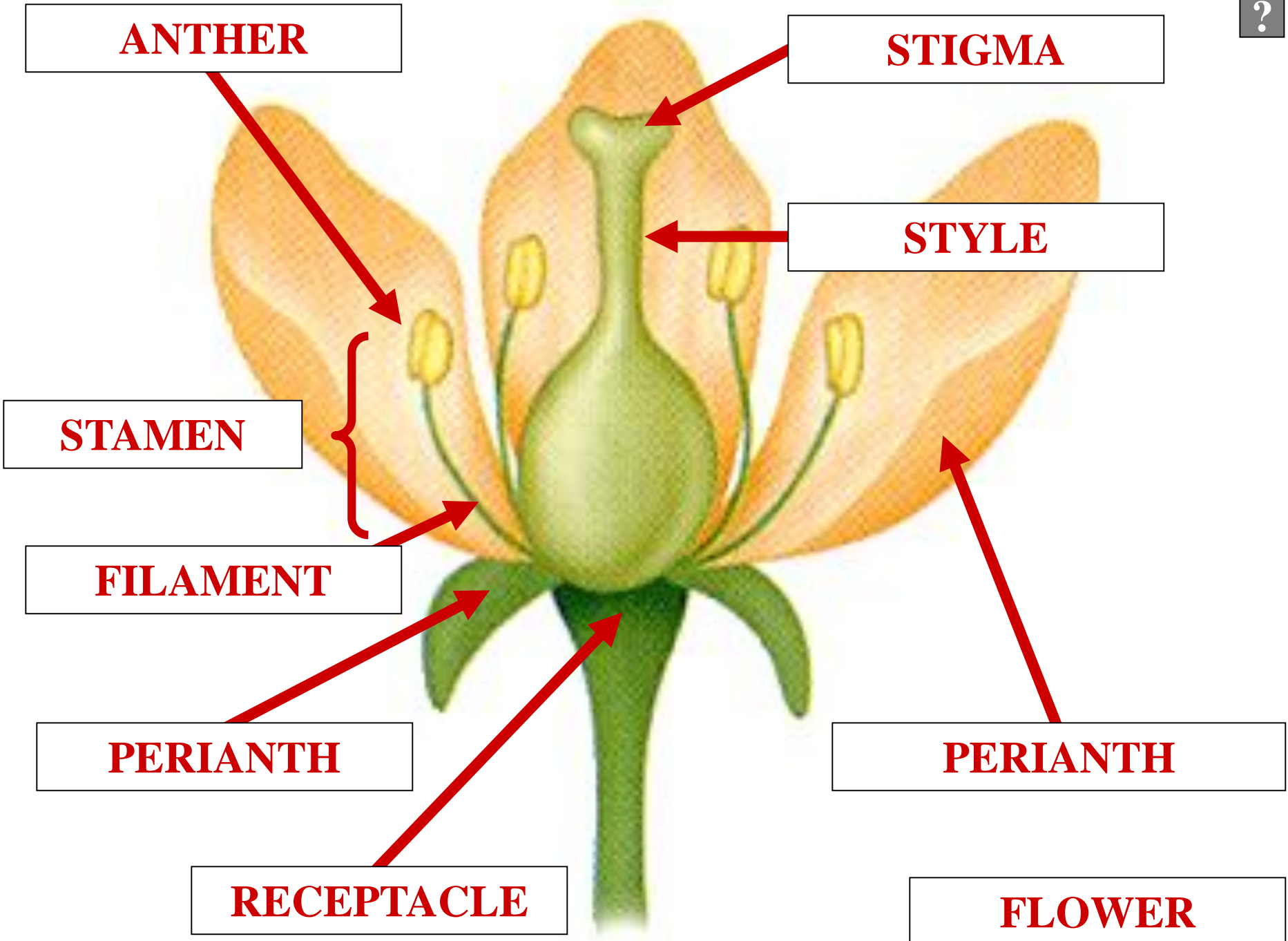
PERIANTH

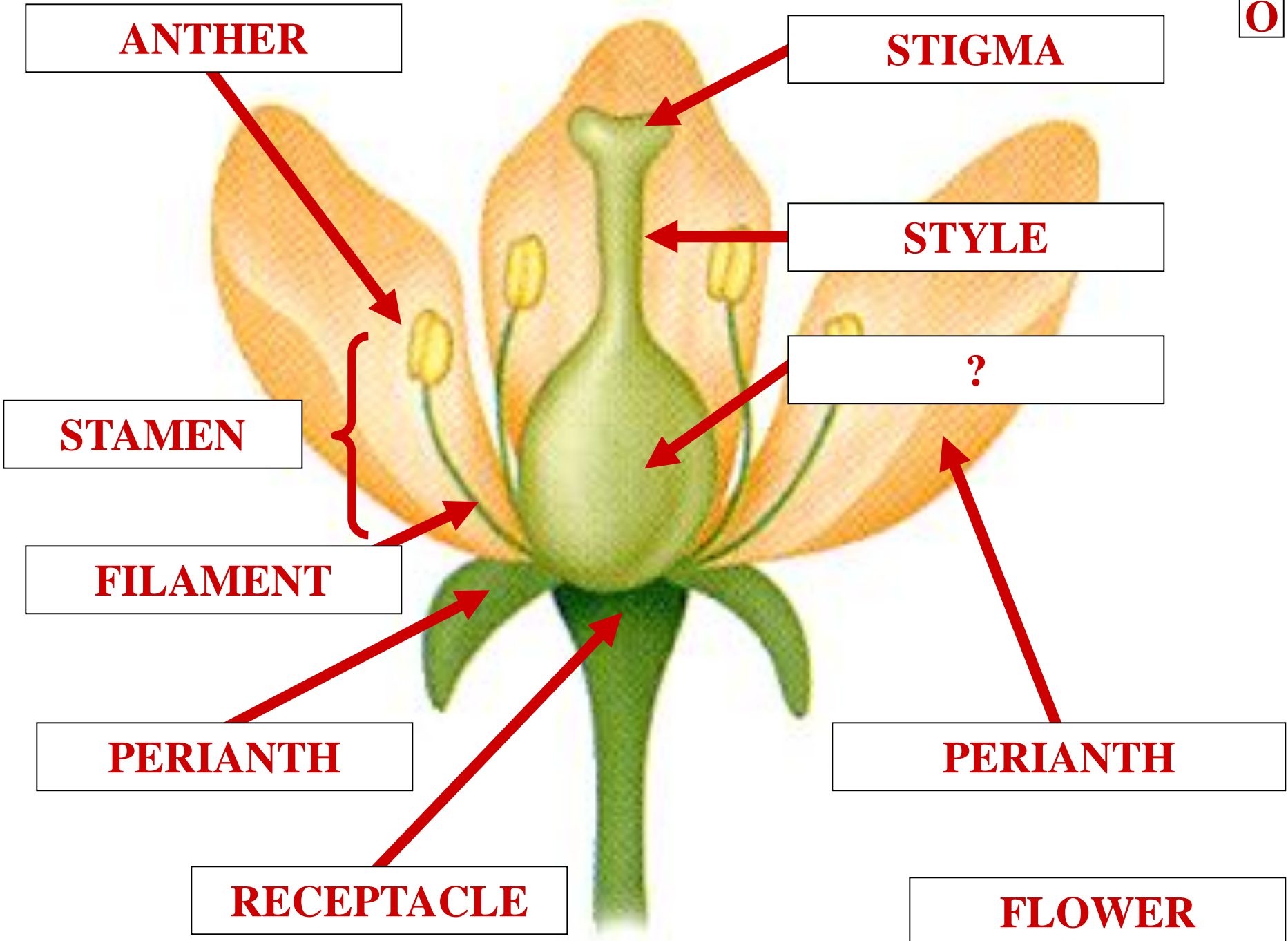
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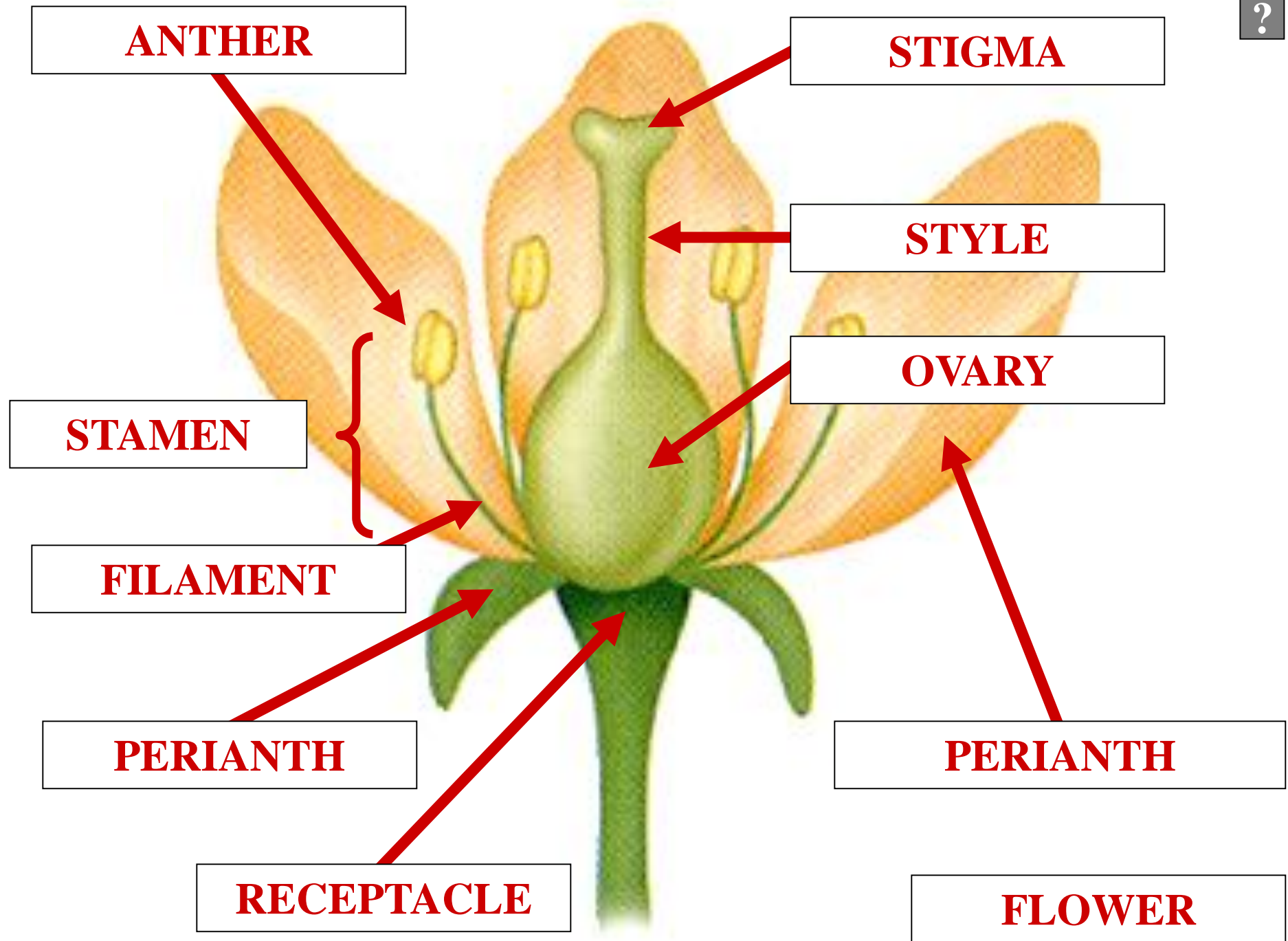
PERIANTH

FLOWER

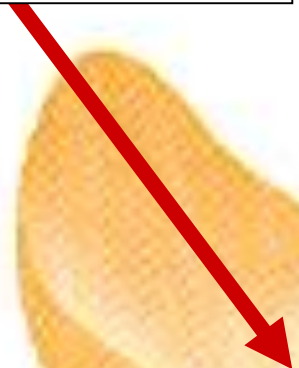








ANTHER



STAMEN



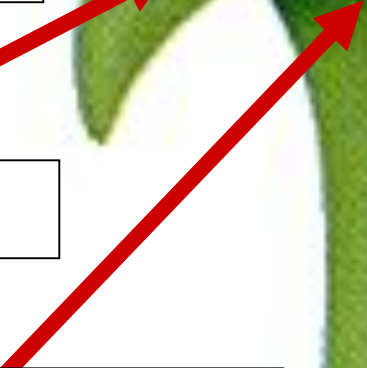
FILAMENT



PERIANTH



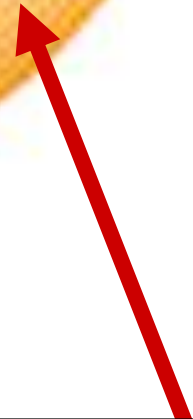
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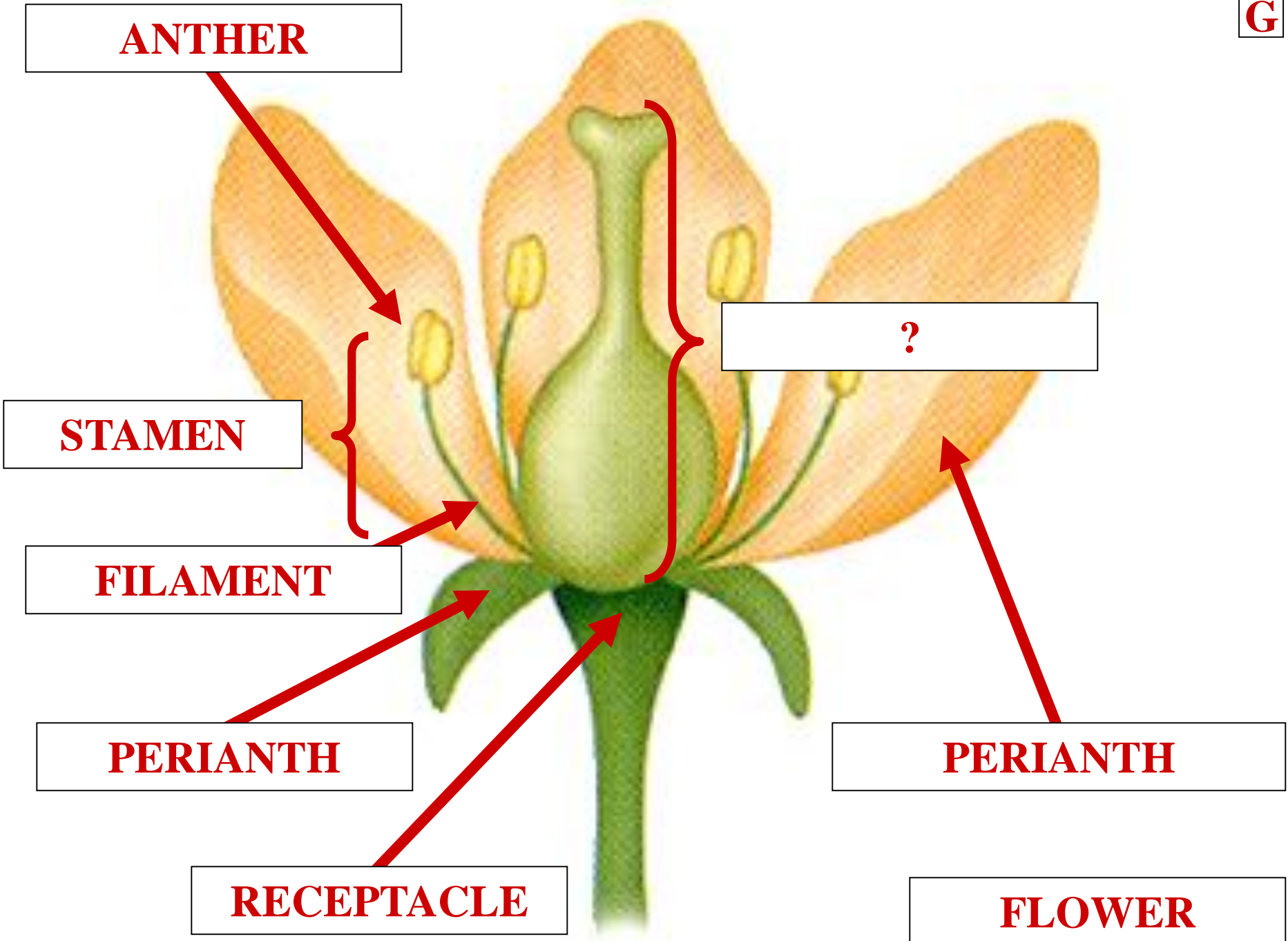
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PERIANTH



FLOWER





ANTHER

GYNOECIUM

STAMEN

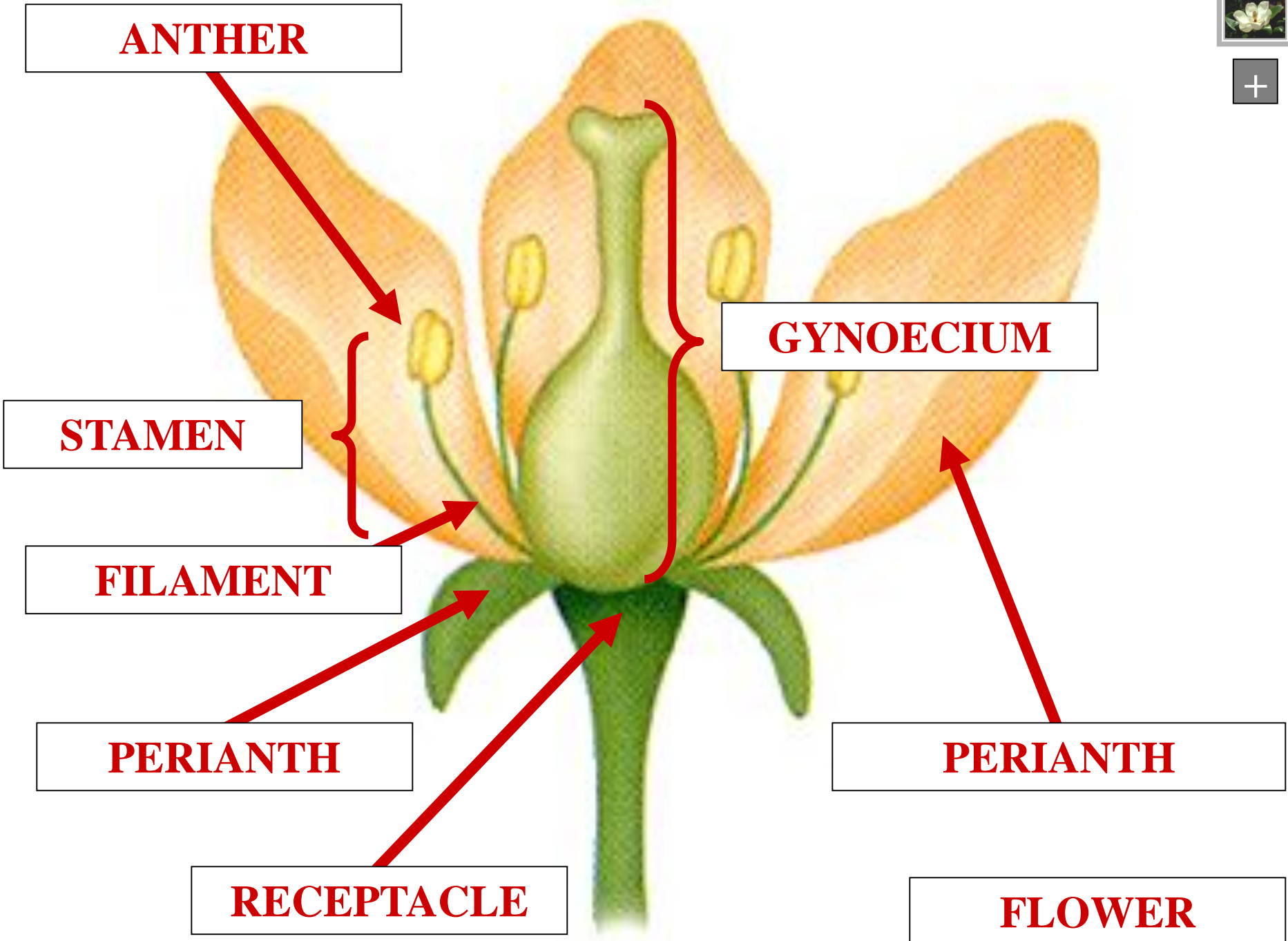
FILAMENT

PERIANTH

RECEPTACLE

PERIANTH

FLOWER





ANGIOSPERM LIFE CYCLE

ANGIOSPERM

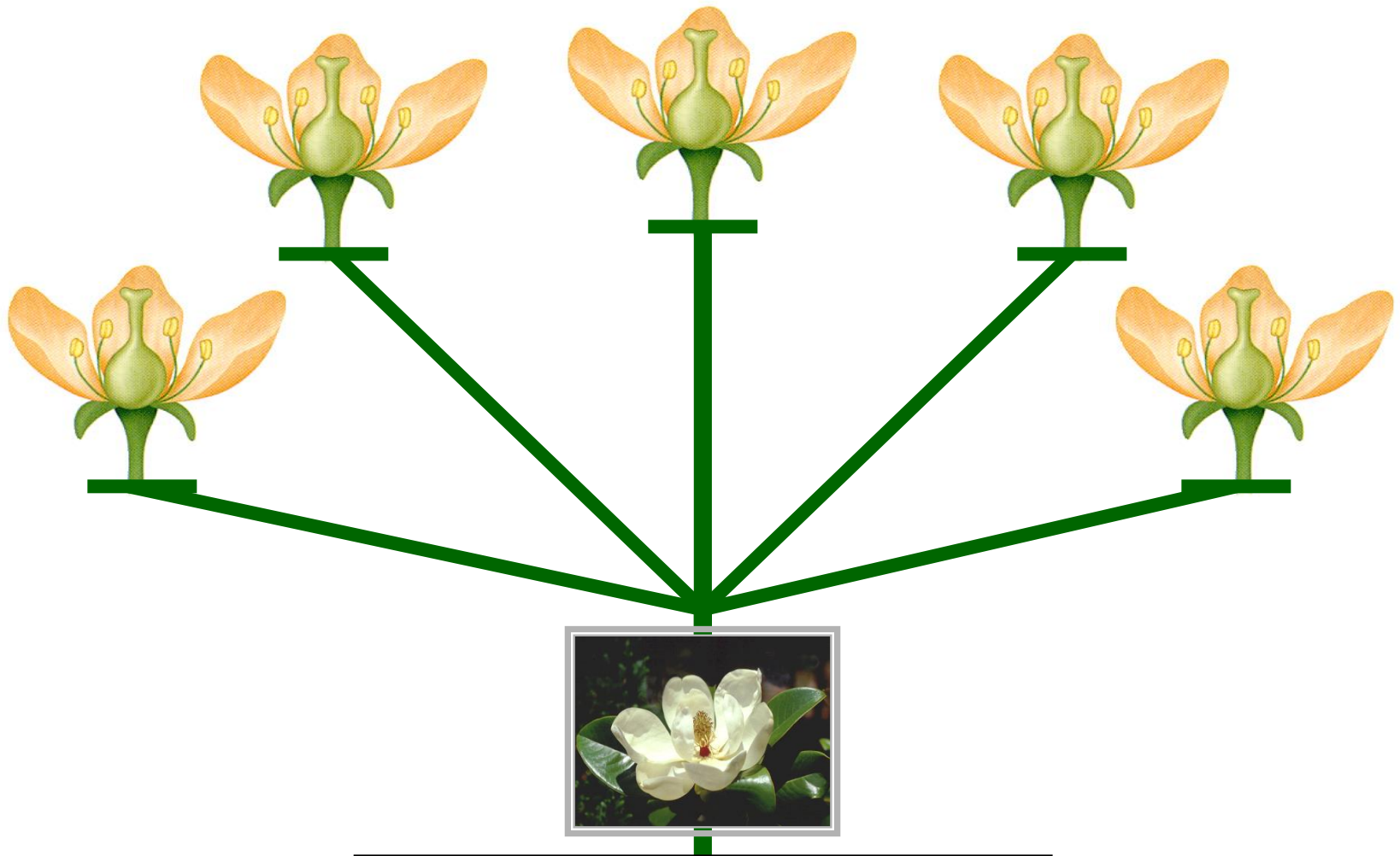


HETEROMORPHIC SPORIC LIFE CYCLE

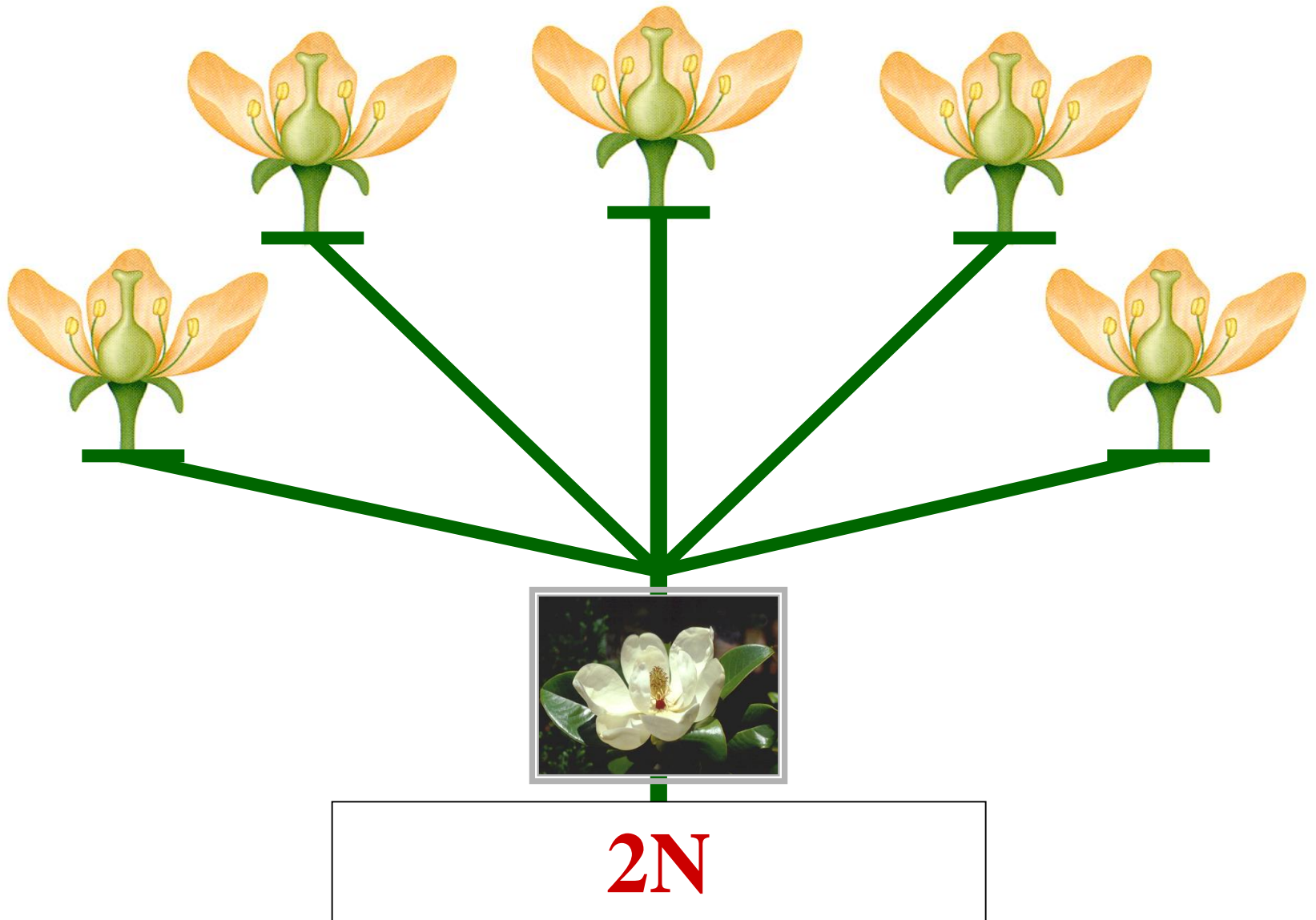


!!! CONSULT PG 472-473!!!



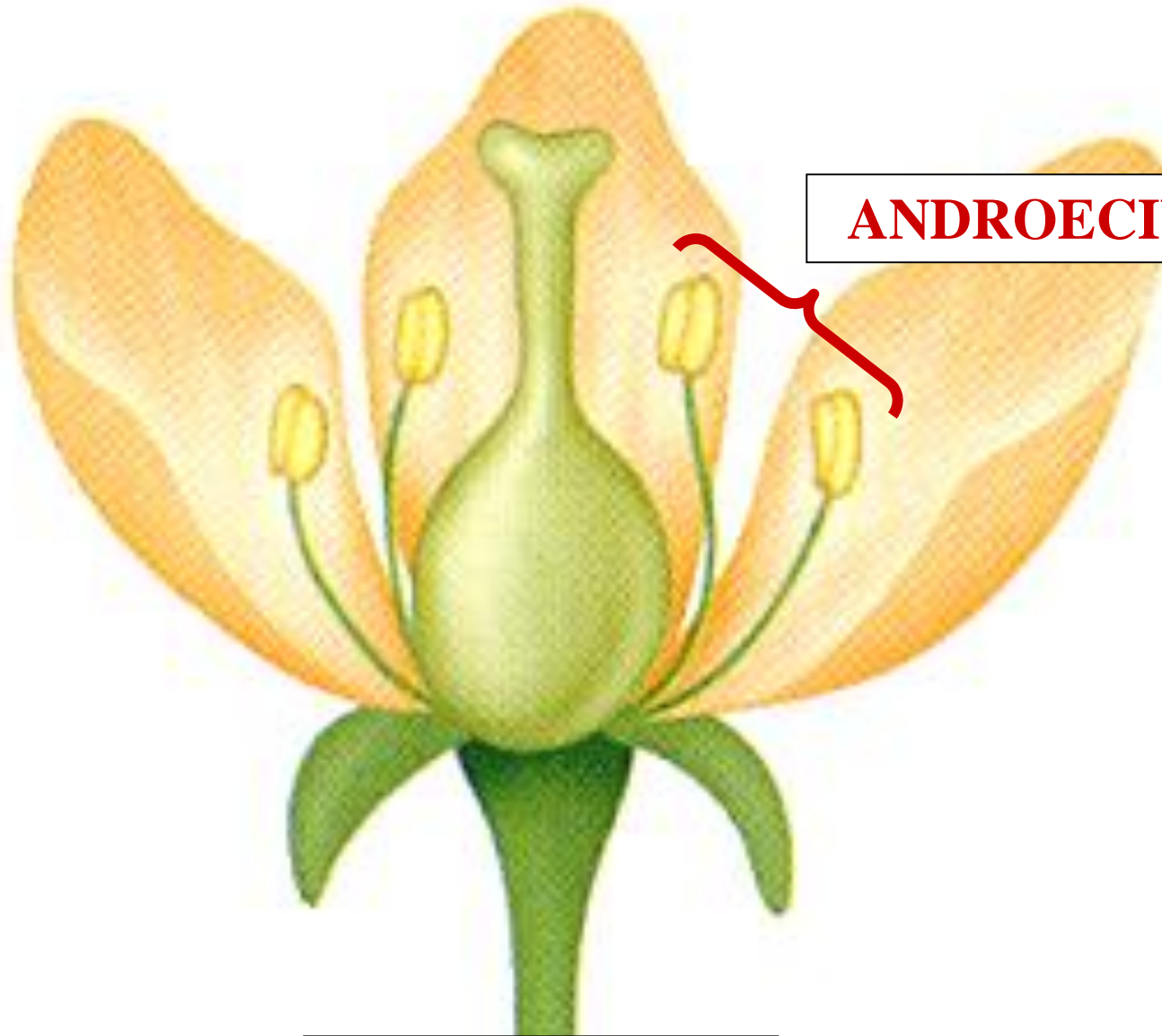


SPOROPHYTE



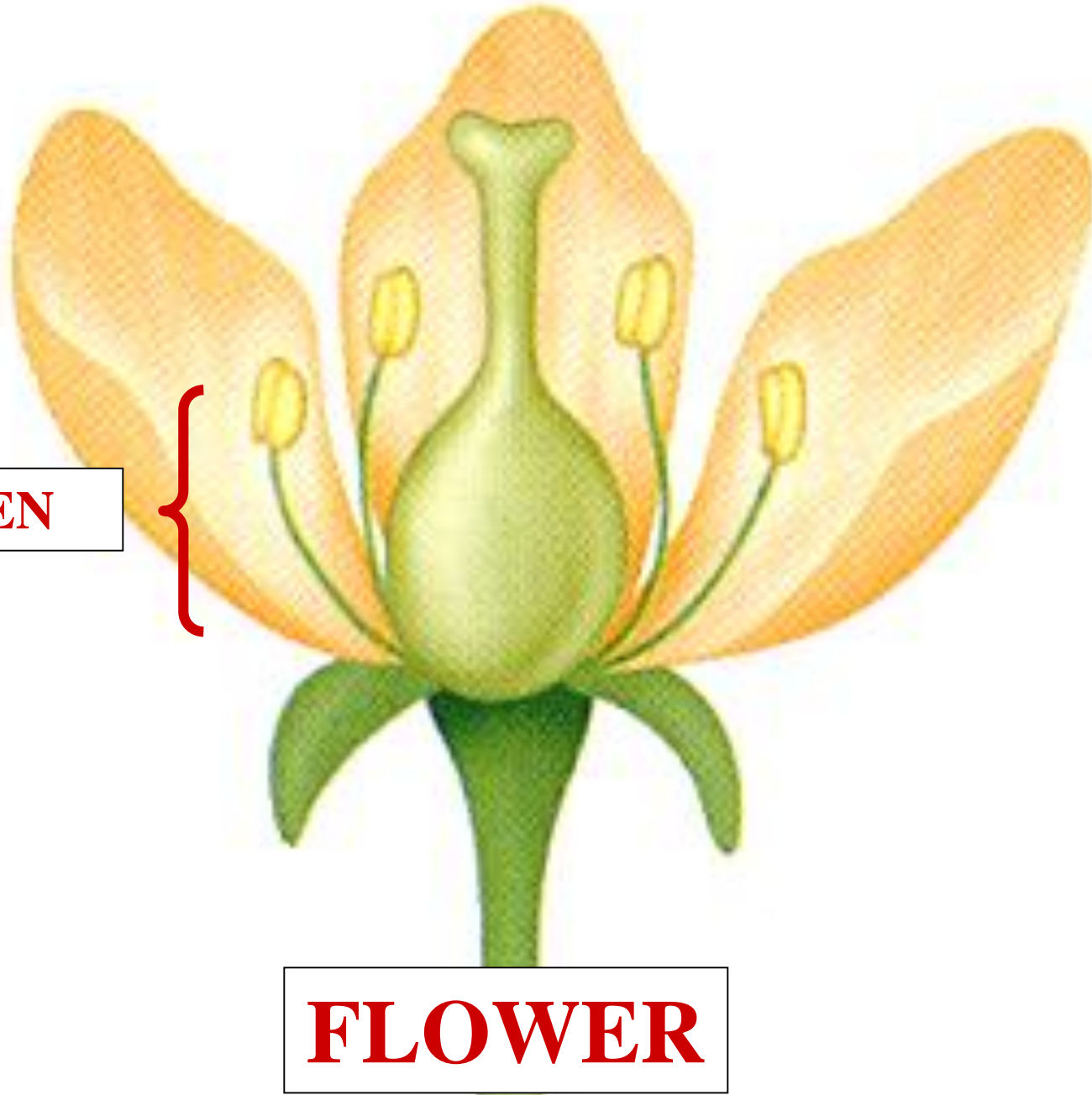


FLOWER



ANDROECIUM

FLOWER



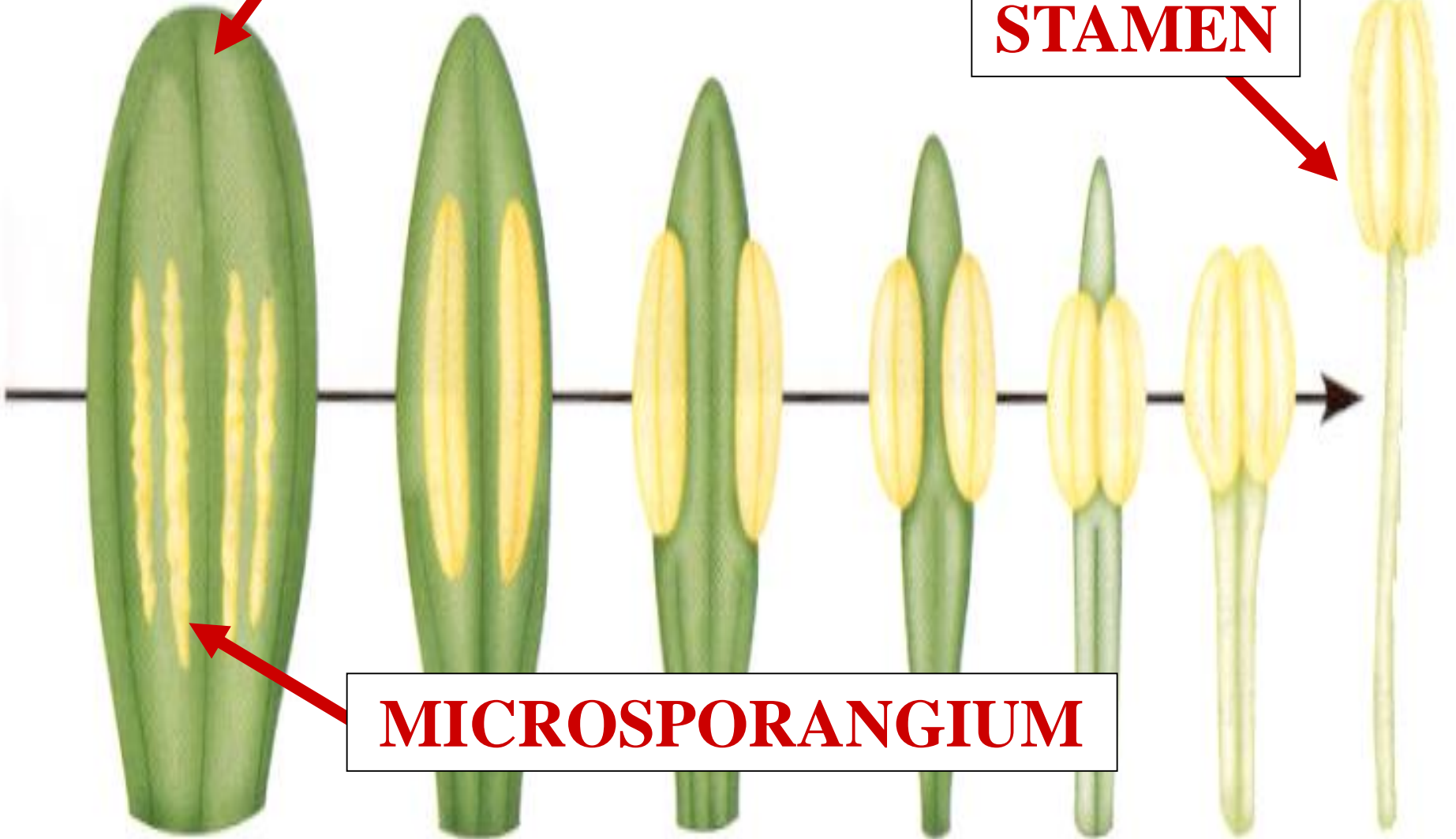
STAMEN

FLOWER

LEAF

STAMEN

MICROSPORANGIUM

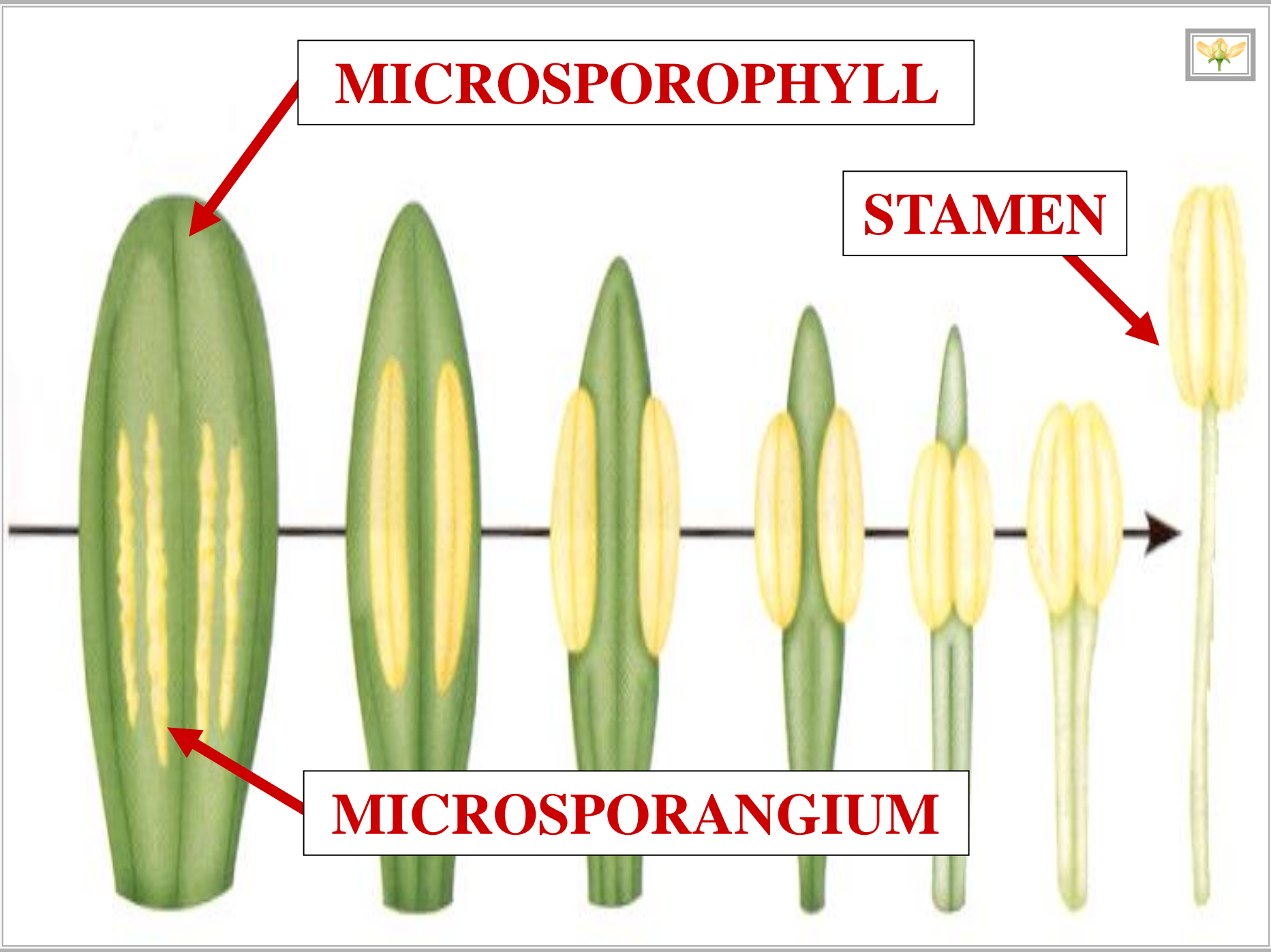


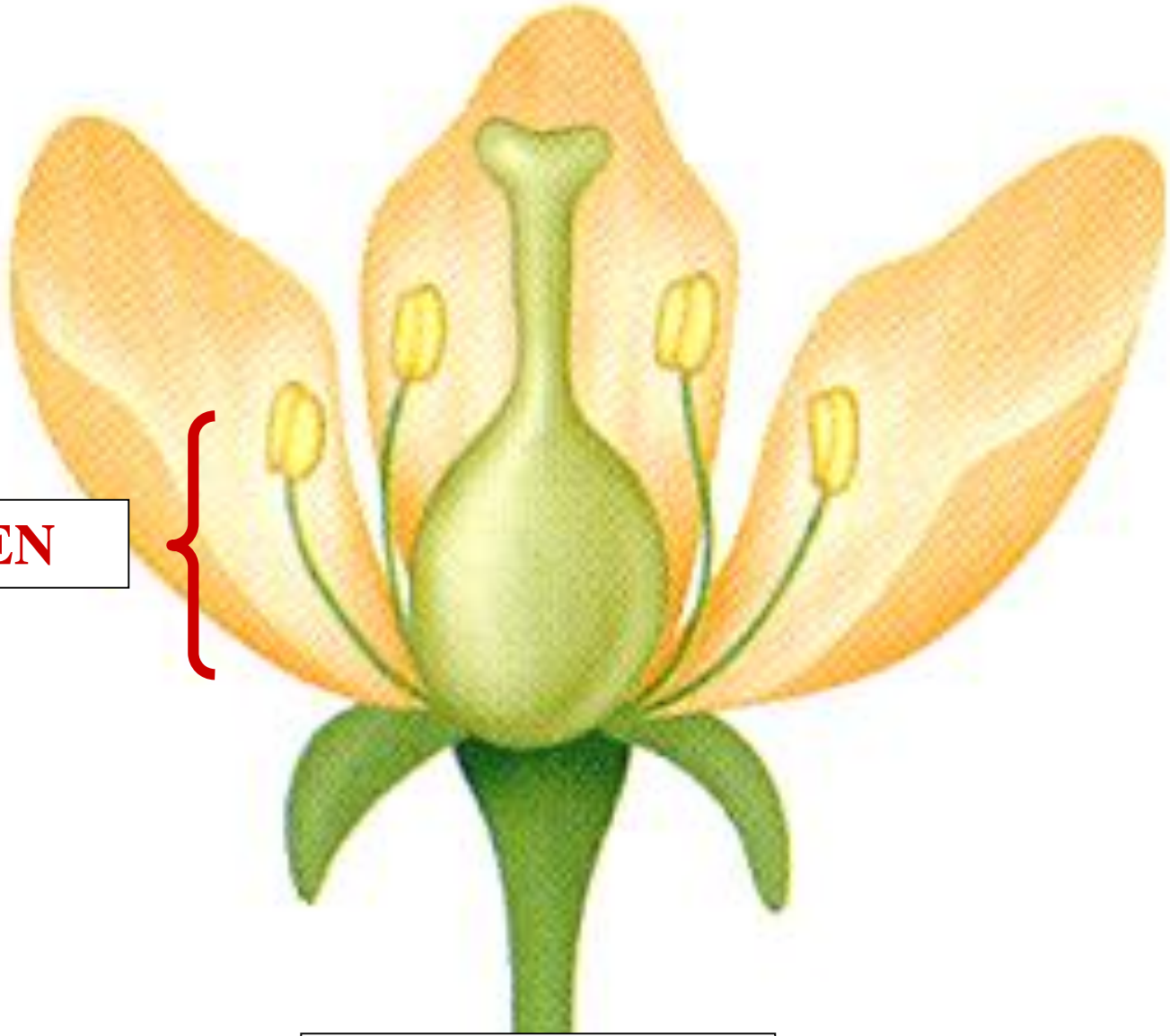


MICROSPOROPHYLL

STAMEN

MICROSPORANGIUM



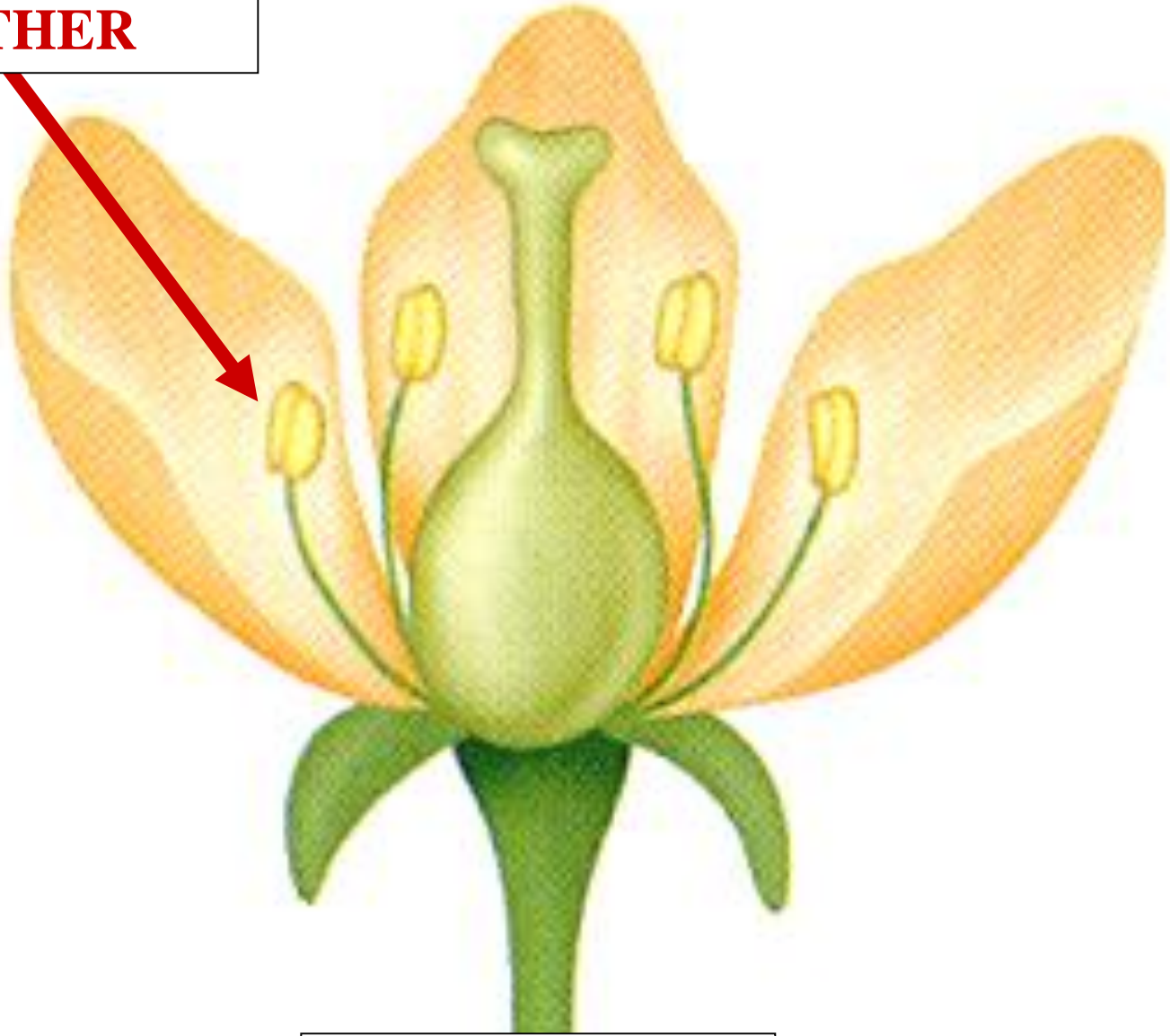


STAMEN

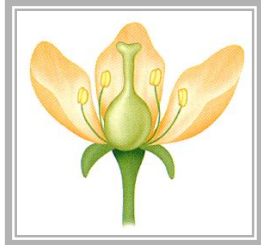
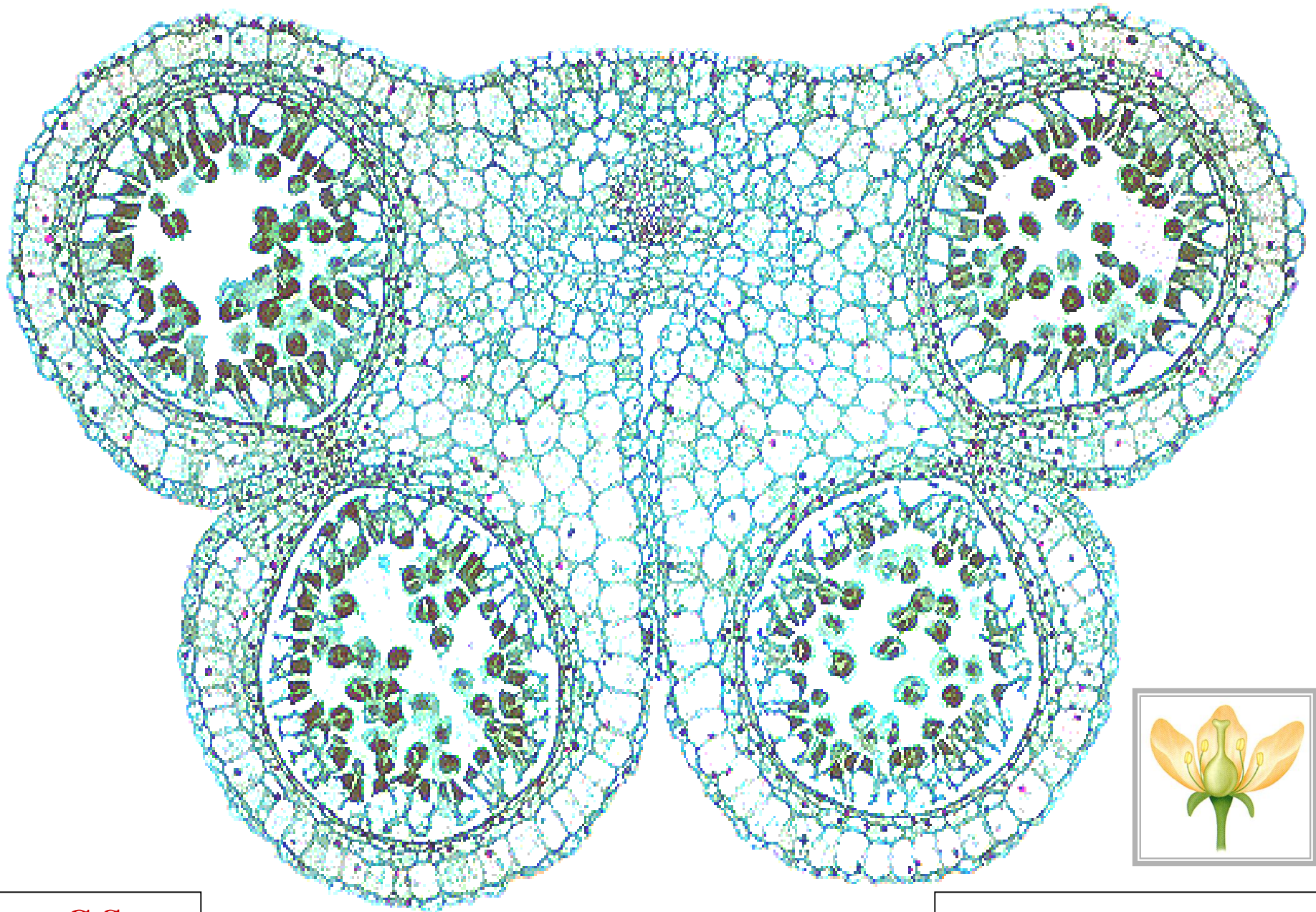
FLOWER



ANTHER

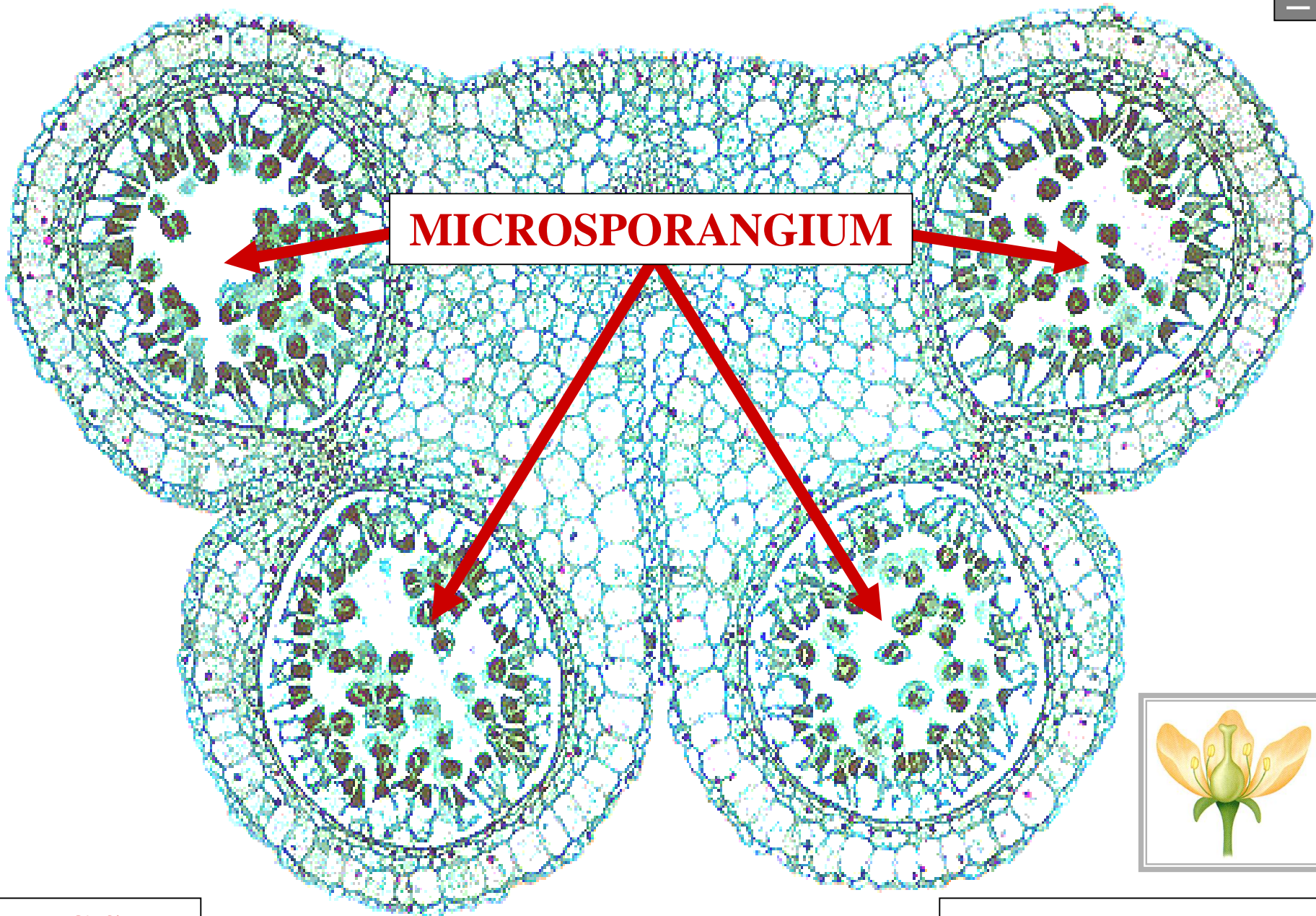


FLOWER



C.S.

ANTHER

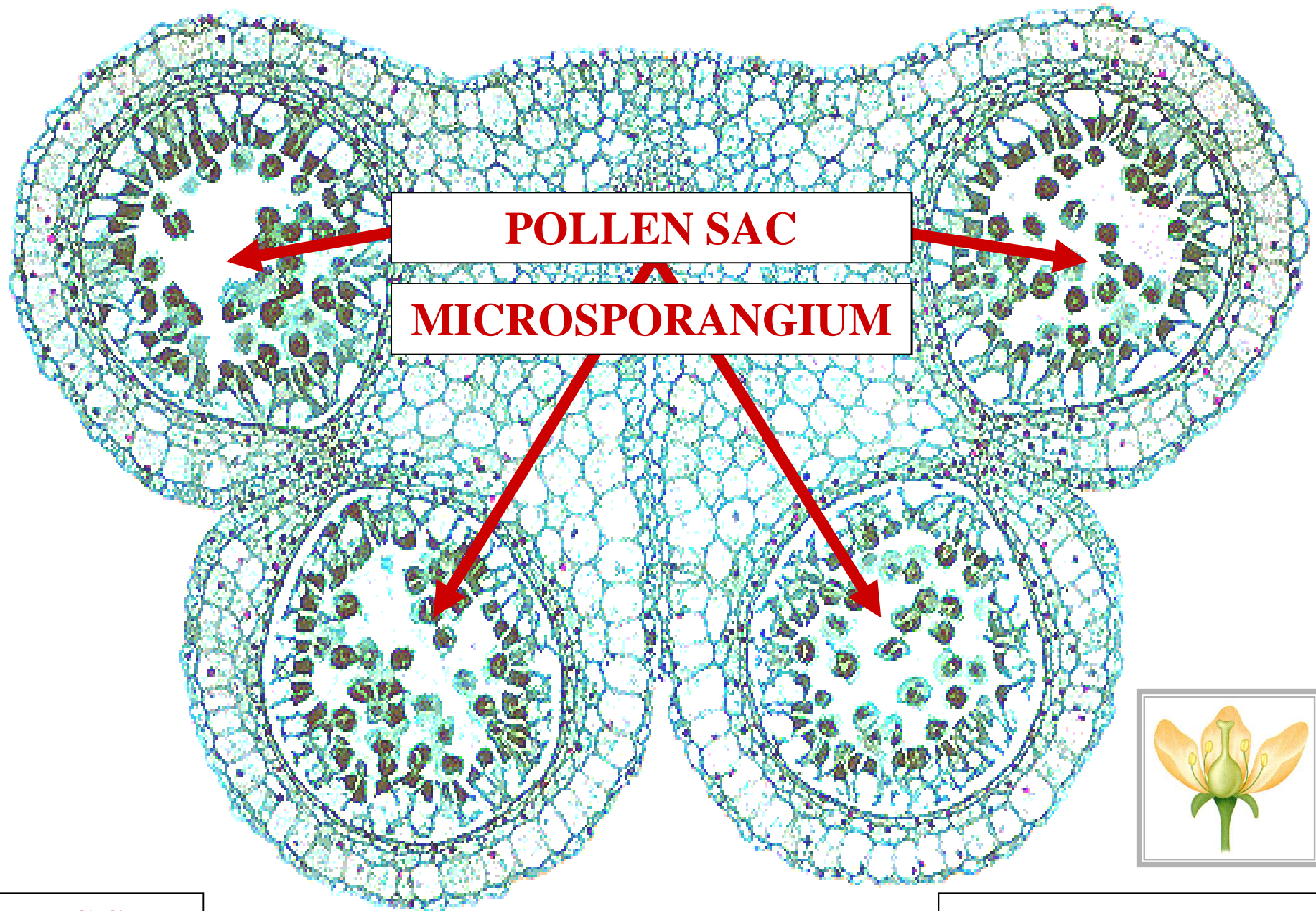


MICROSPORANGIUM

C.S.

ANTHER





POLLEN SAC

MICROSPORANGIUM



C.S.

ANTHER