



**ATTENTION STUDENTS**



**BIOLOGY 363**

**VASCULAR PLANTS**

**LABORATORY #12**



**ANGIOSPERM  
FLOWER  
MORPHOLOGY  
&  
ANATOMY**



**ATTENTION STUDENTS** 



**REQUIRED MATERIAL**

**LAB EXAM #5**

**&**

**FINAL EXAM**

# PLANT FLOWER HABIT



# **SOLITARY FLOWER**

**SOLITARY  
FLOWER**



**TRILLIUM**



# INFLORESCENCE



**ORCHID**



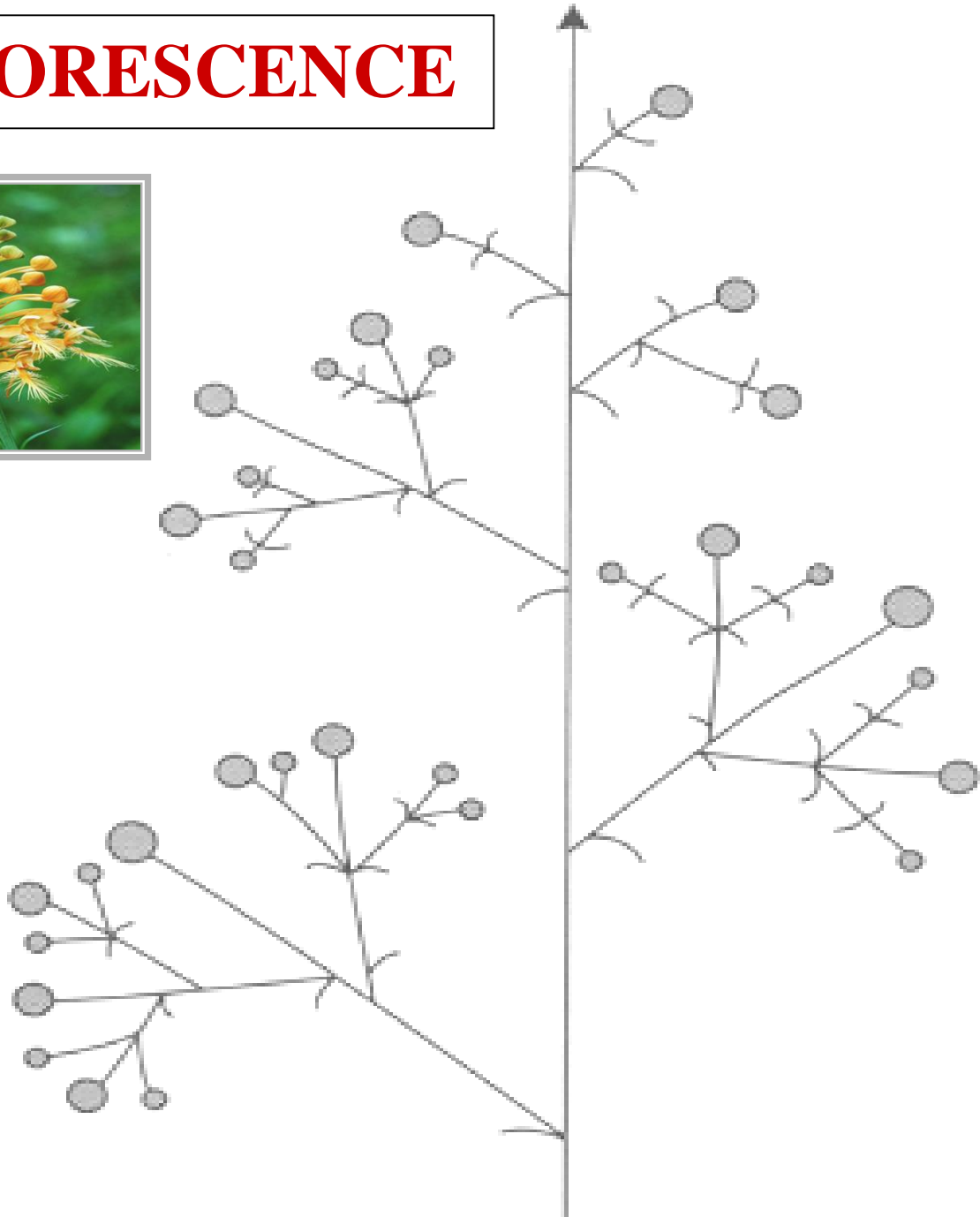
**INFLORESCENCE**



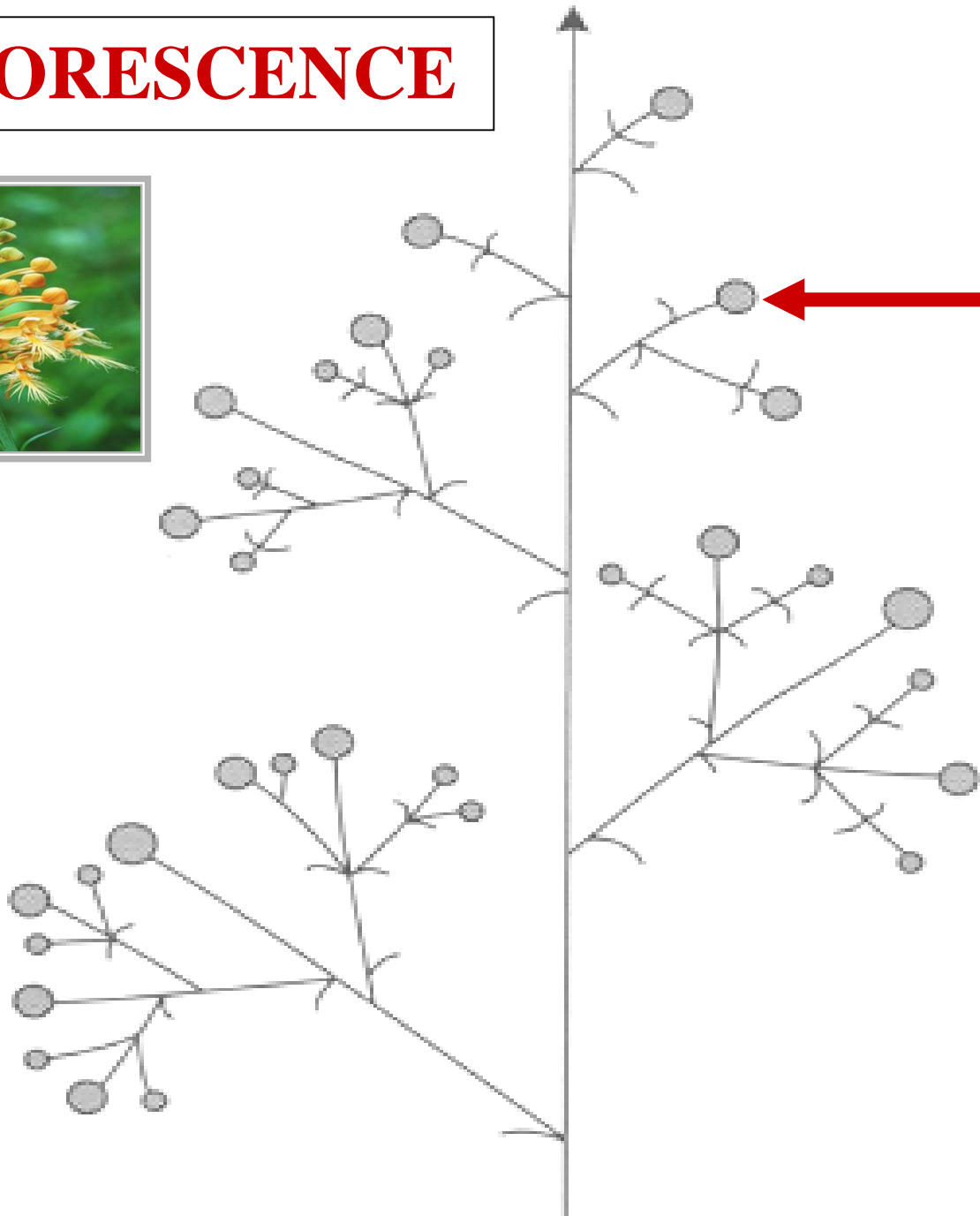


# INFLORESCENCE MORPHOLOGY

# INFLORESCENCE

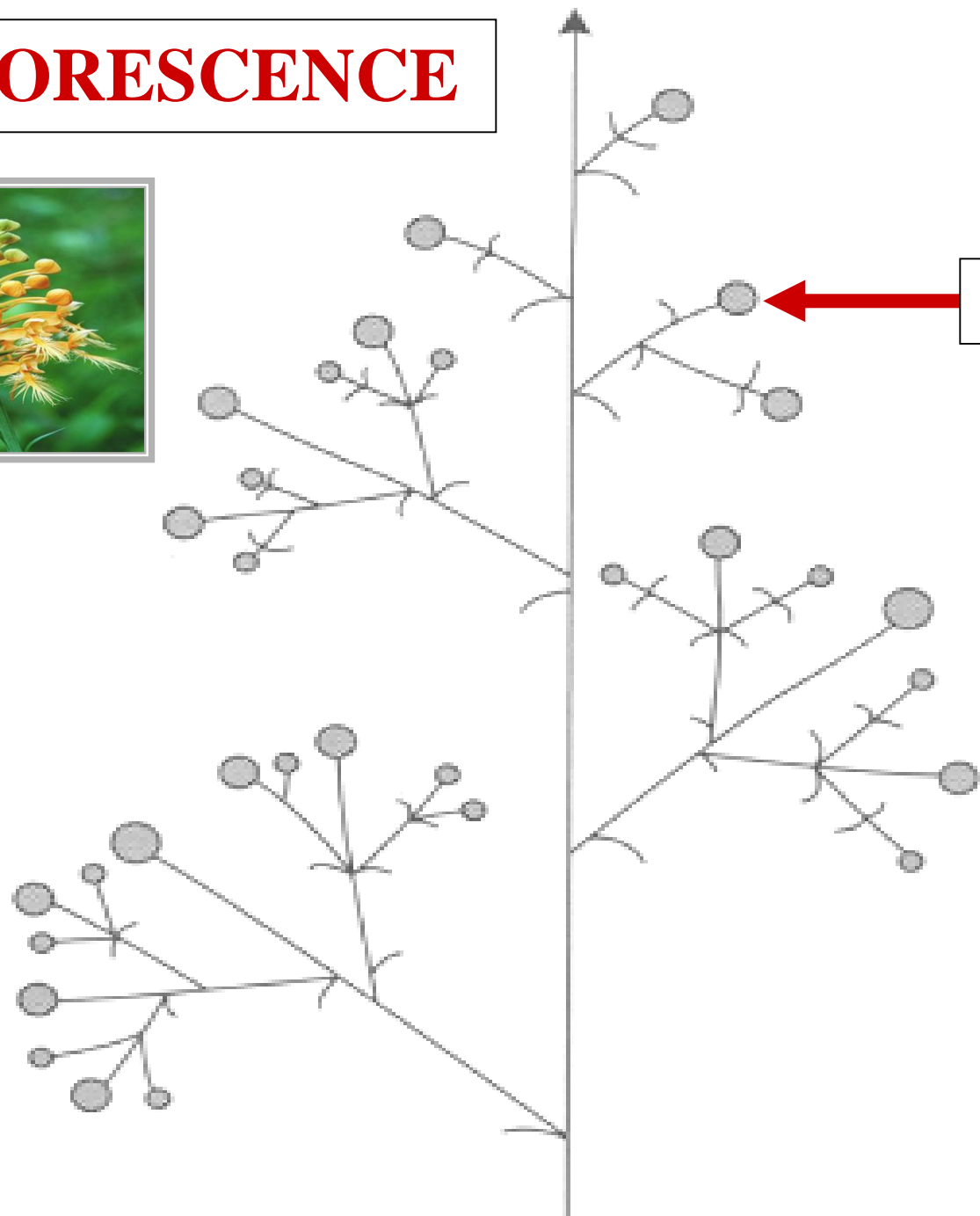


# INFLORESCENCE



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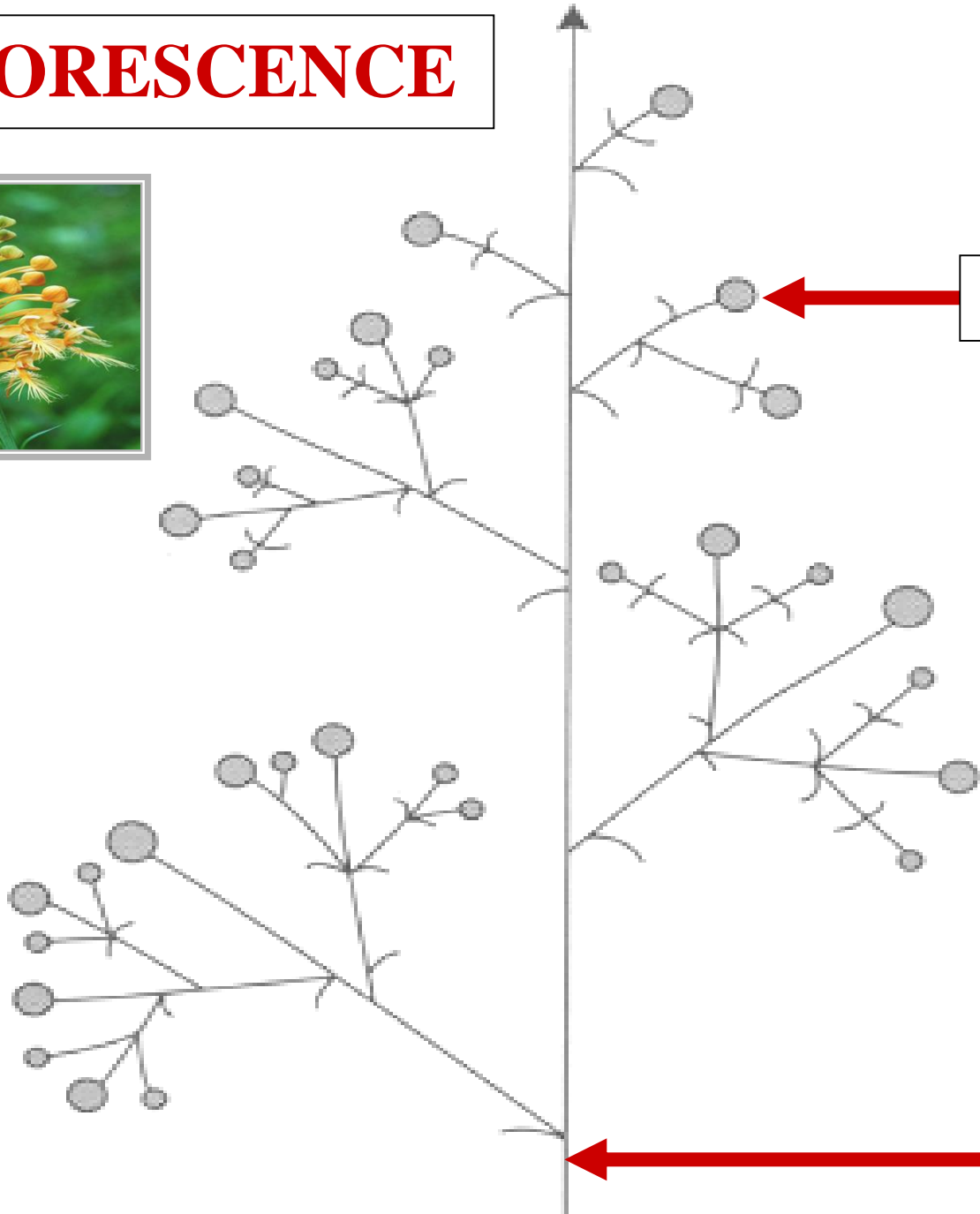
# INFLORESCENCE



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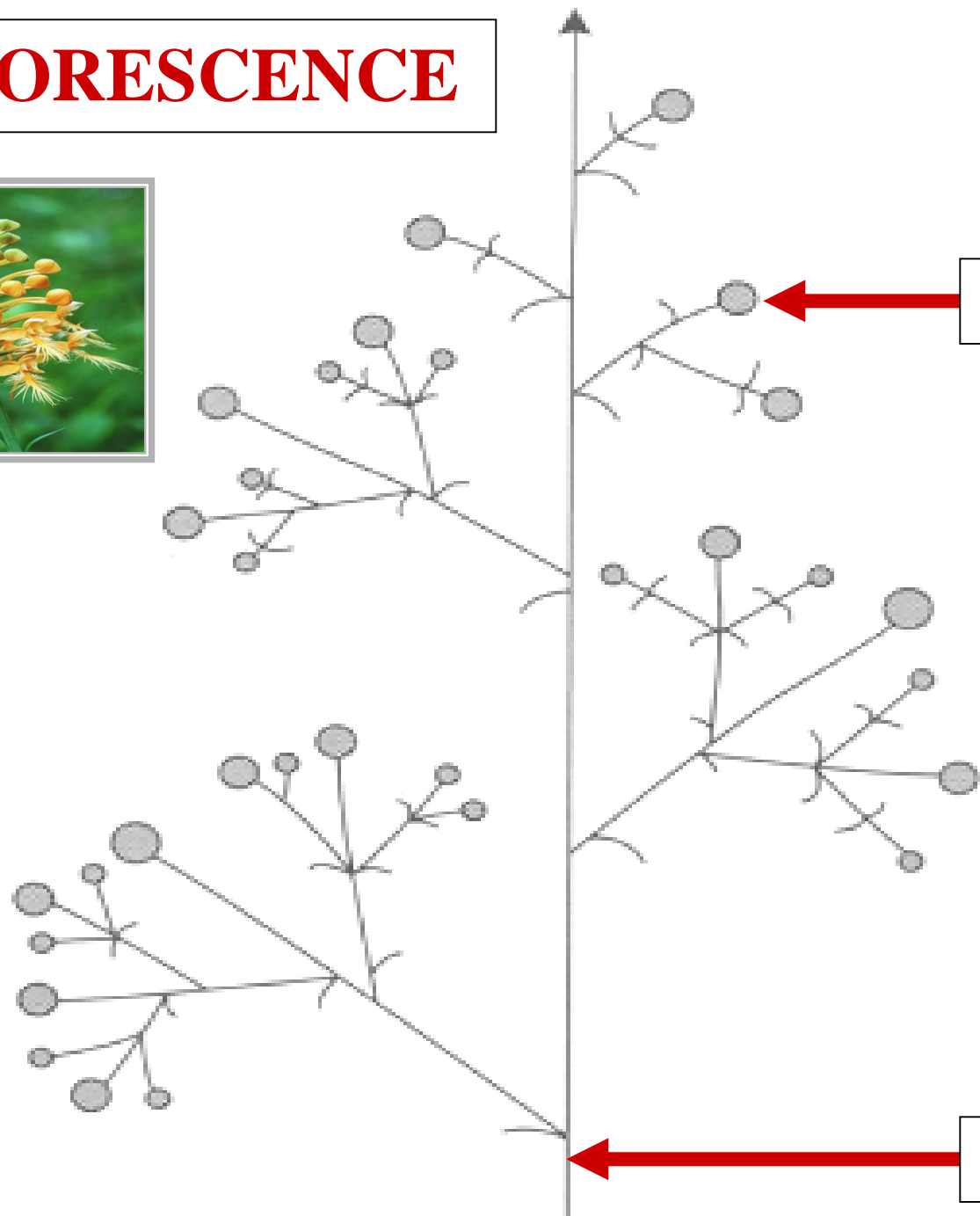
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**2**

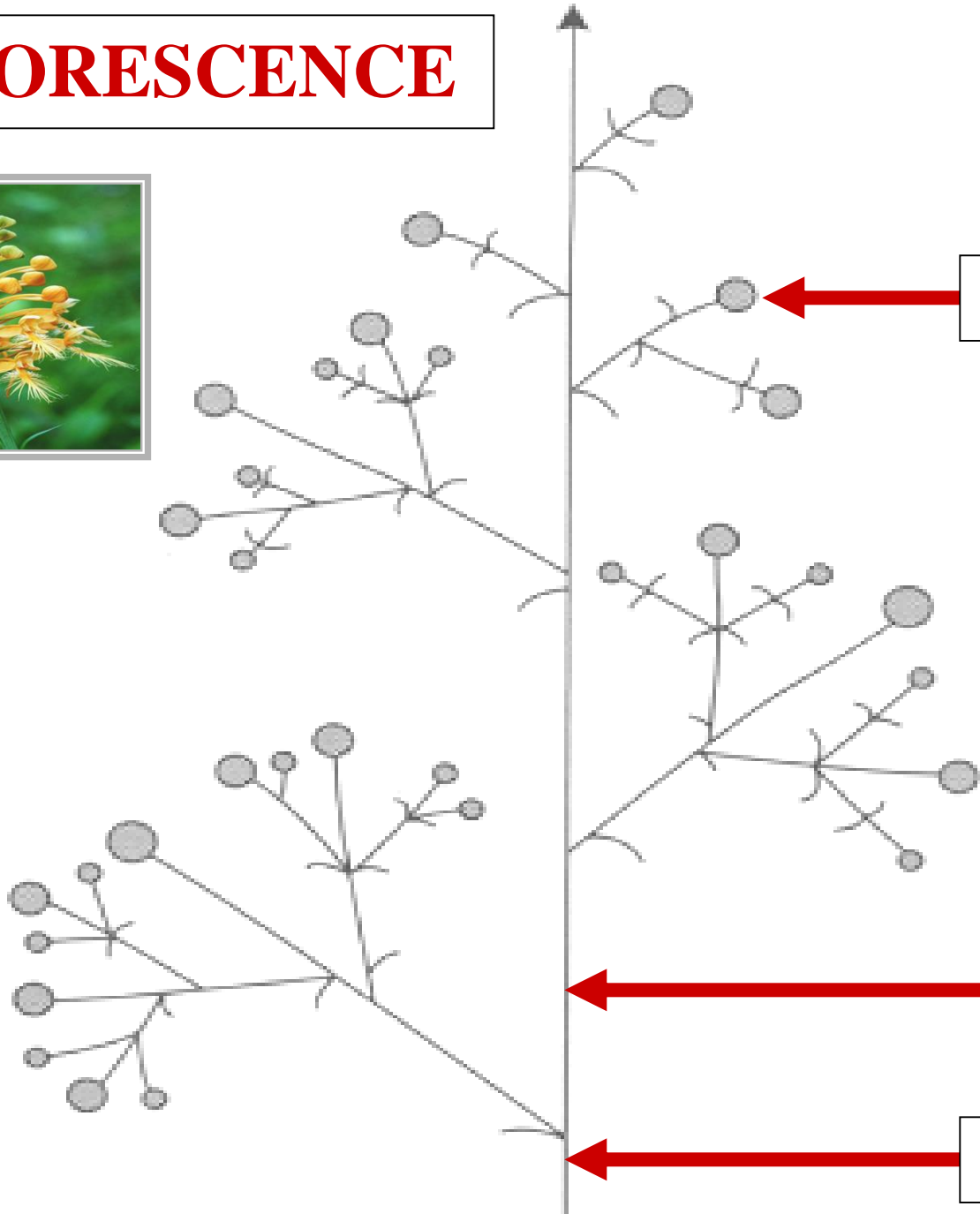
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**FLOWER**

**PEDUNCLE**

# INFLORESCENCE

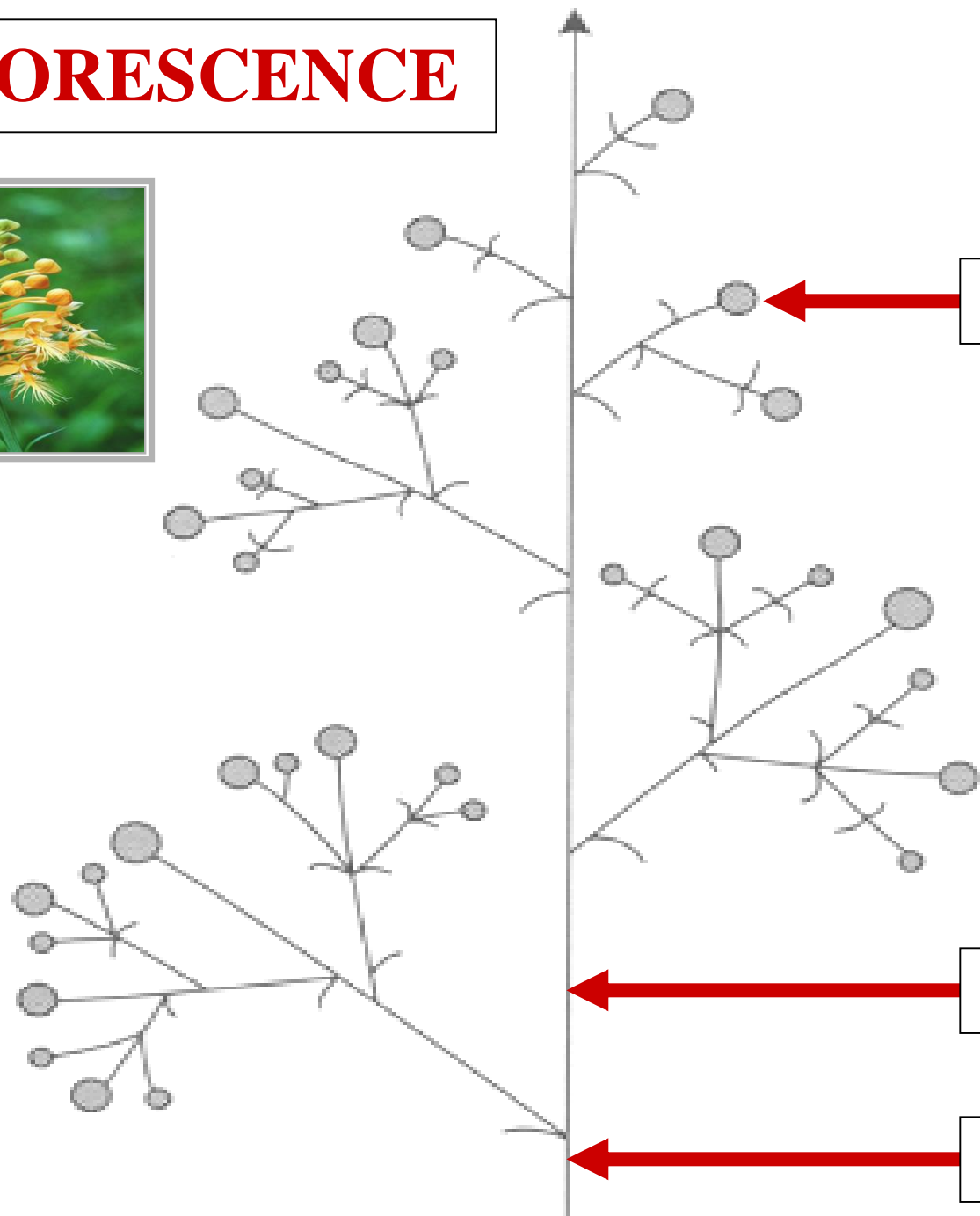


FLOWER

3

PEDUNCLE

# INFLORESCENCE



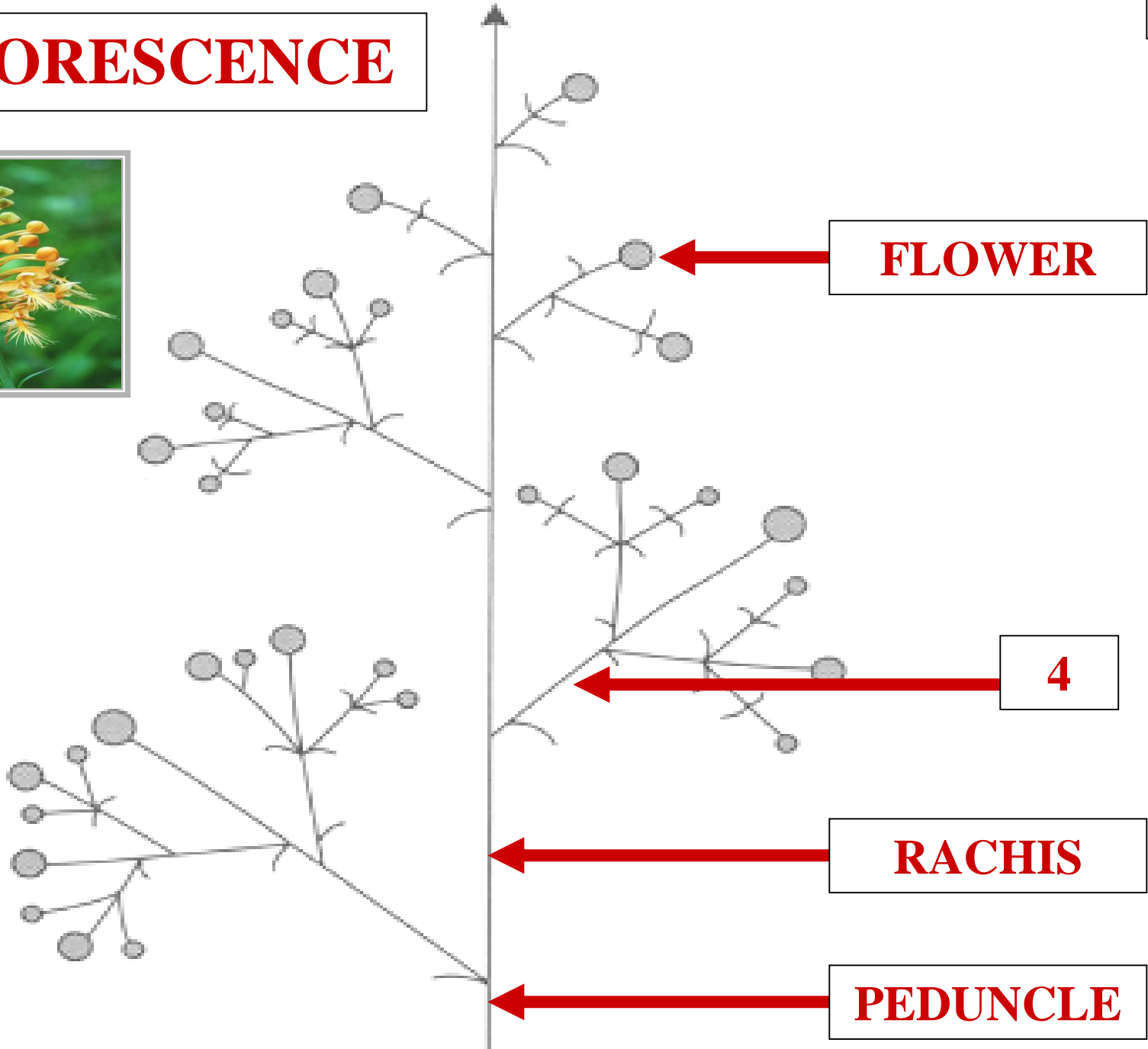
**FLOWER**

**RACHIS**

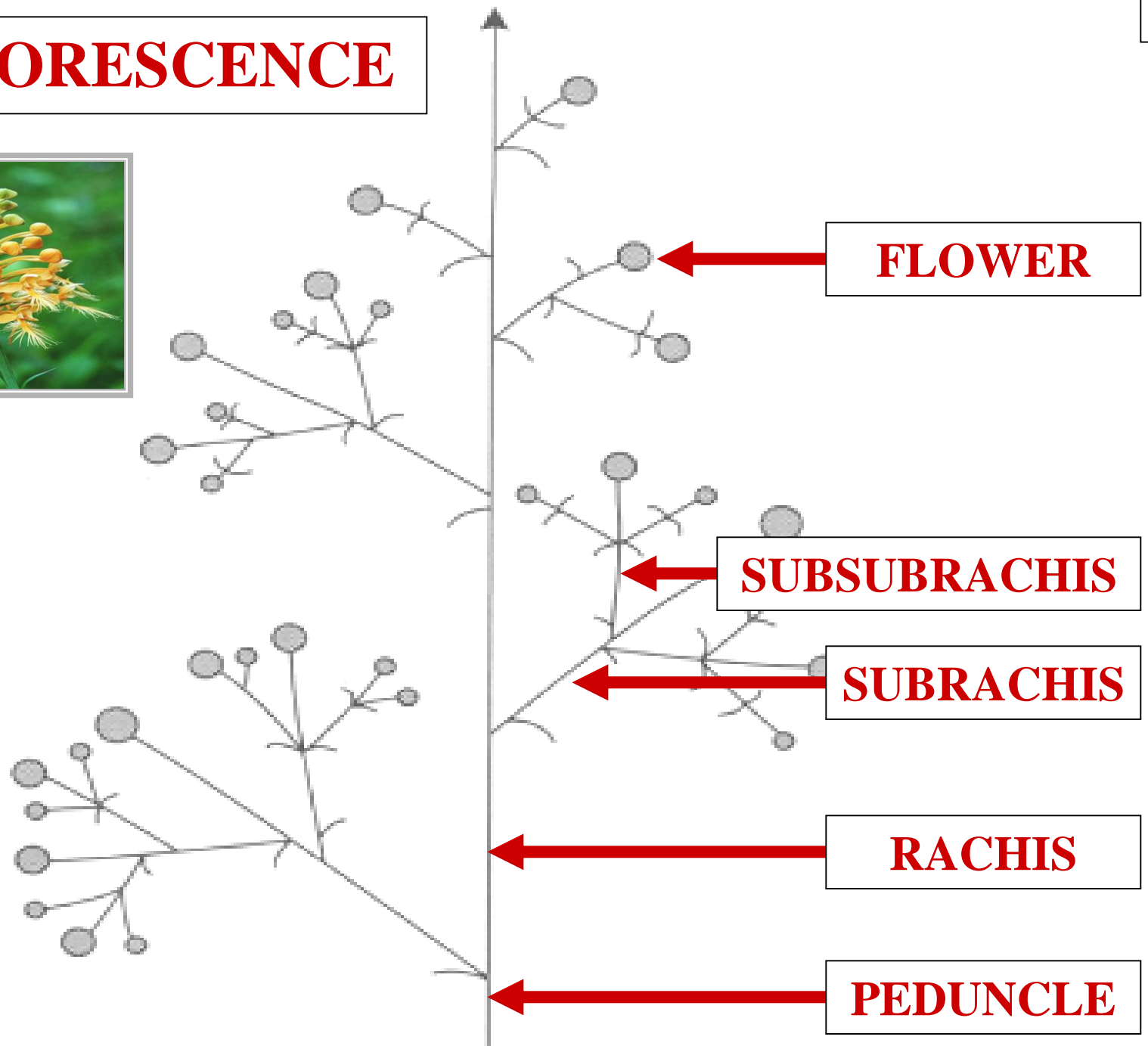
**PEDUNCLE**



# INFLORESCENCE



# INFLORESCENCE



**FLOWER**

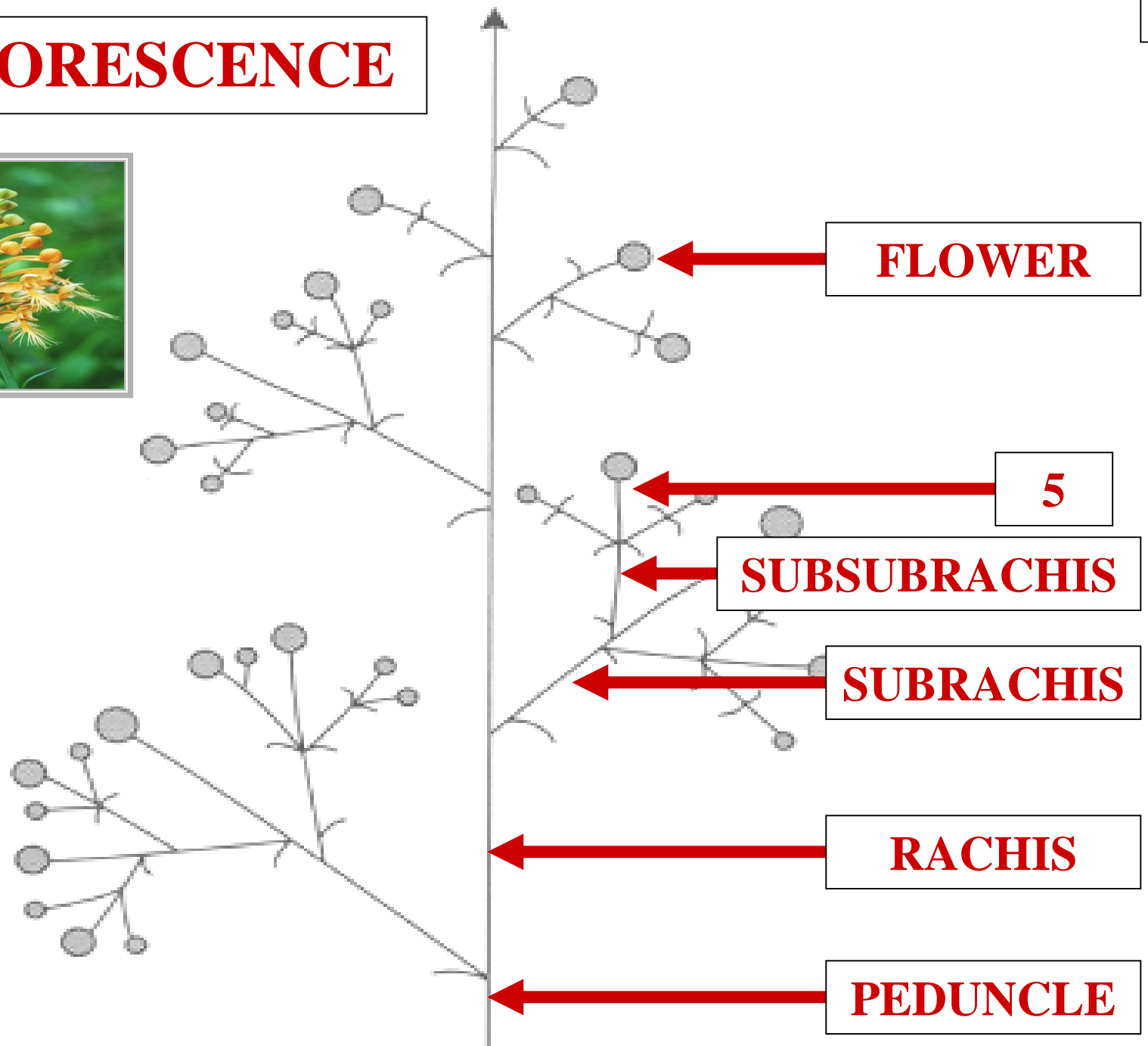
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**SUBBRACHIS**

**RACHIS**

**PEDUNCLE**

# INFLORESCENCE



FLOWER

5

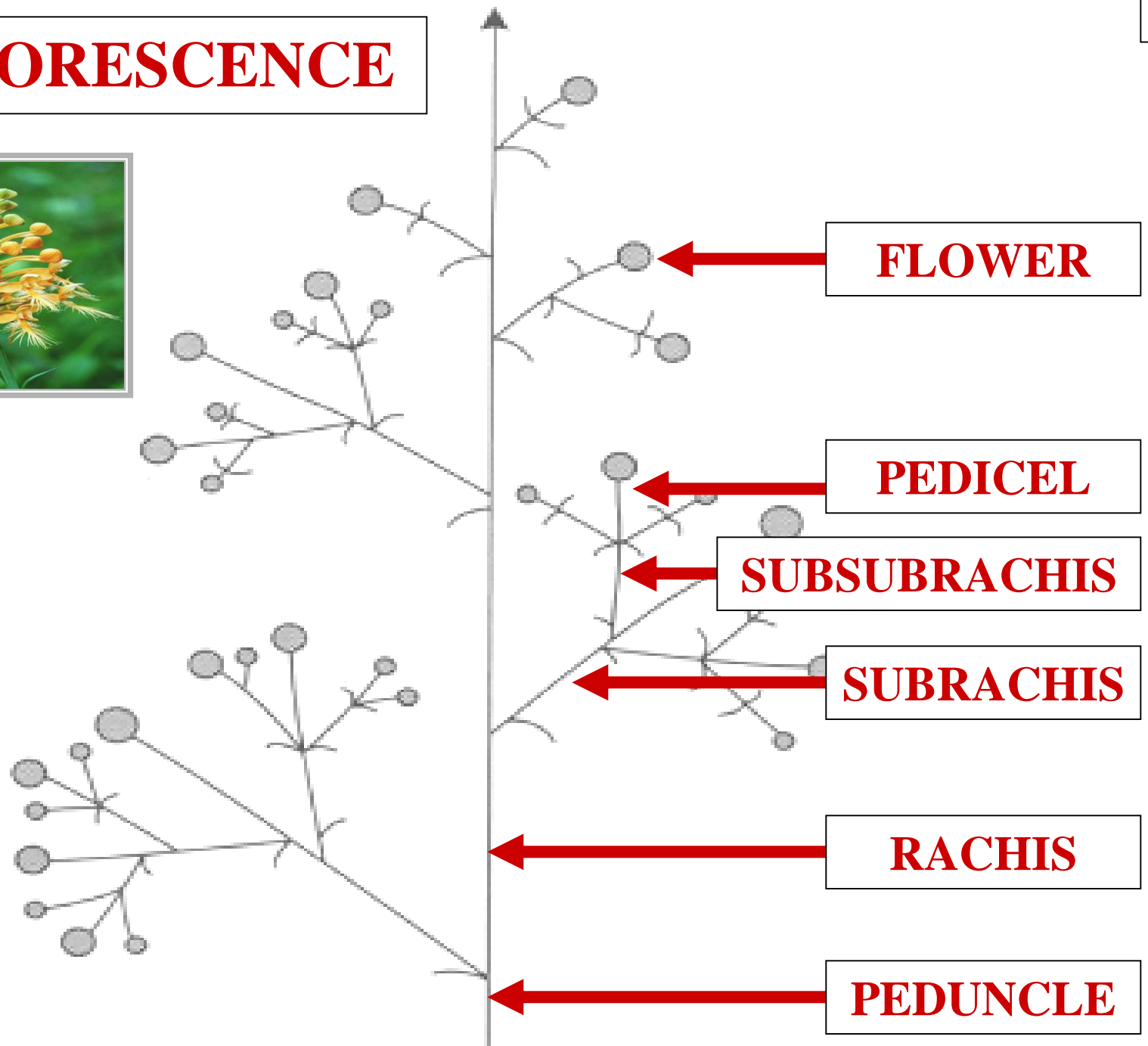
SUBSUBBRACHIS

SUBBRACHIS

RACHIS

PEDUNCLE

# INFLORESCENCE



**FLOWER**

**PEDICEL**

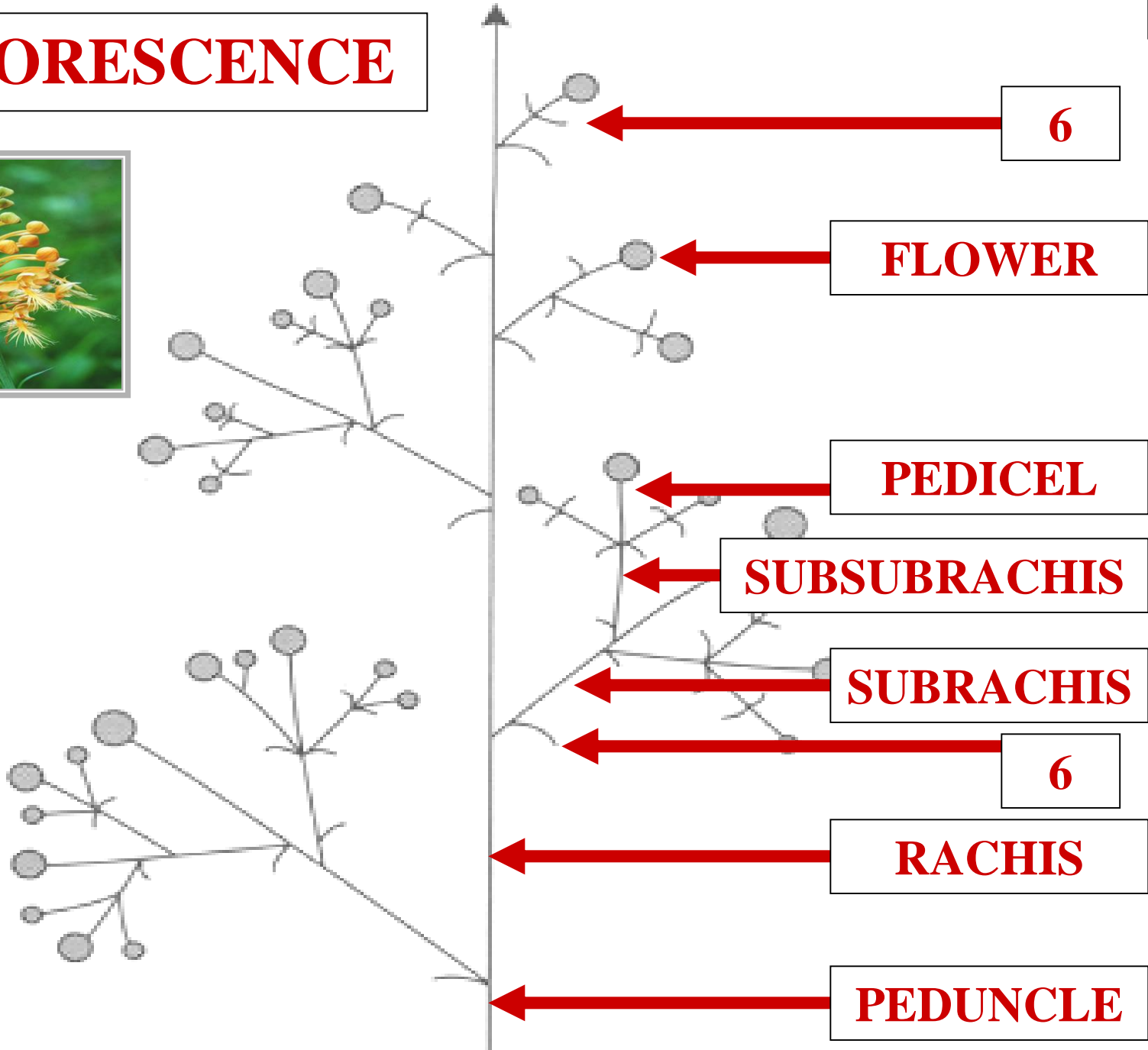
**SUBSUBBRACHIS**

**SUBBRACHIS**

**RACHIS**

**PEDUNCLE**

# INFLORESCENCE



6

FLOWER

PEDICEL

SUBSUBBRACHIS

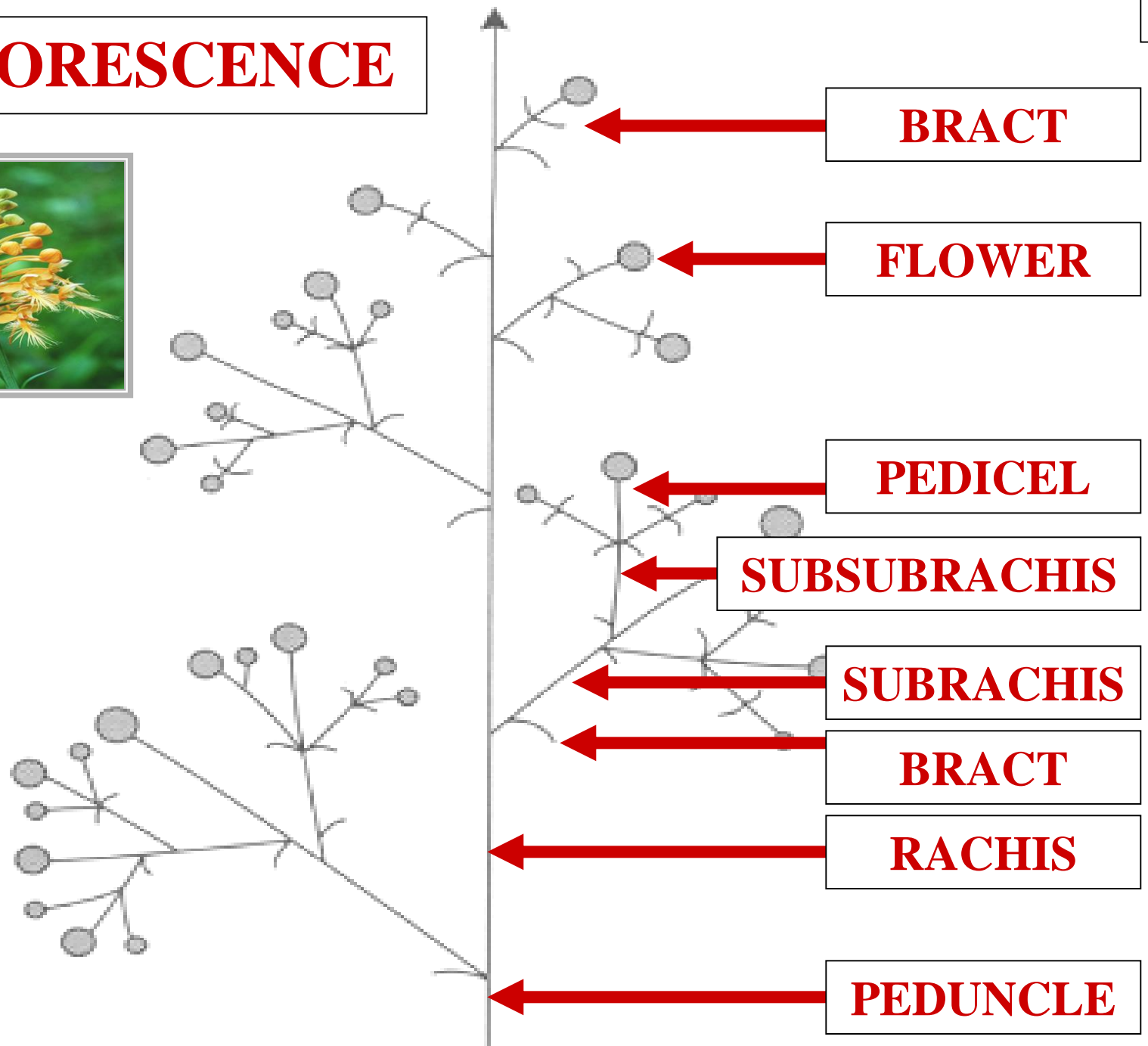
SUBBRACHIS

6

RACHIS

PEDUNCLE

# INFLORESCENCE



**BRACT**

**FLOWER**

**PEDICEL**

**SUBSUBRACHIS**

**SUBRACHIS**

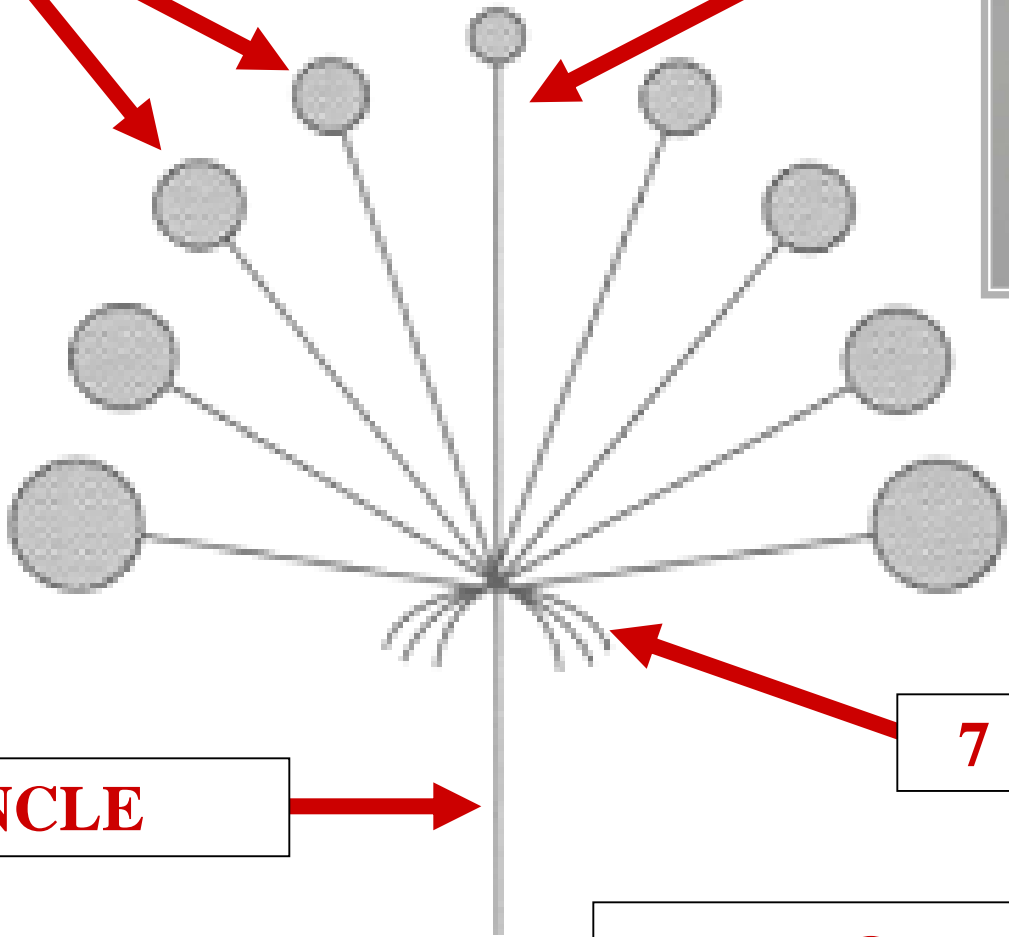
**BRACT**

**RACHIS**

**PEDUNCLE**

**FLOWERS**

**PEDICEL**



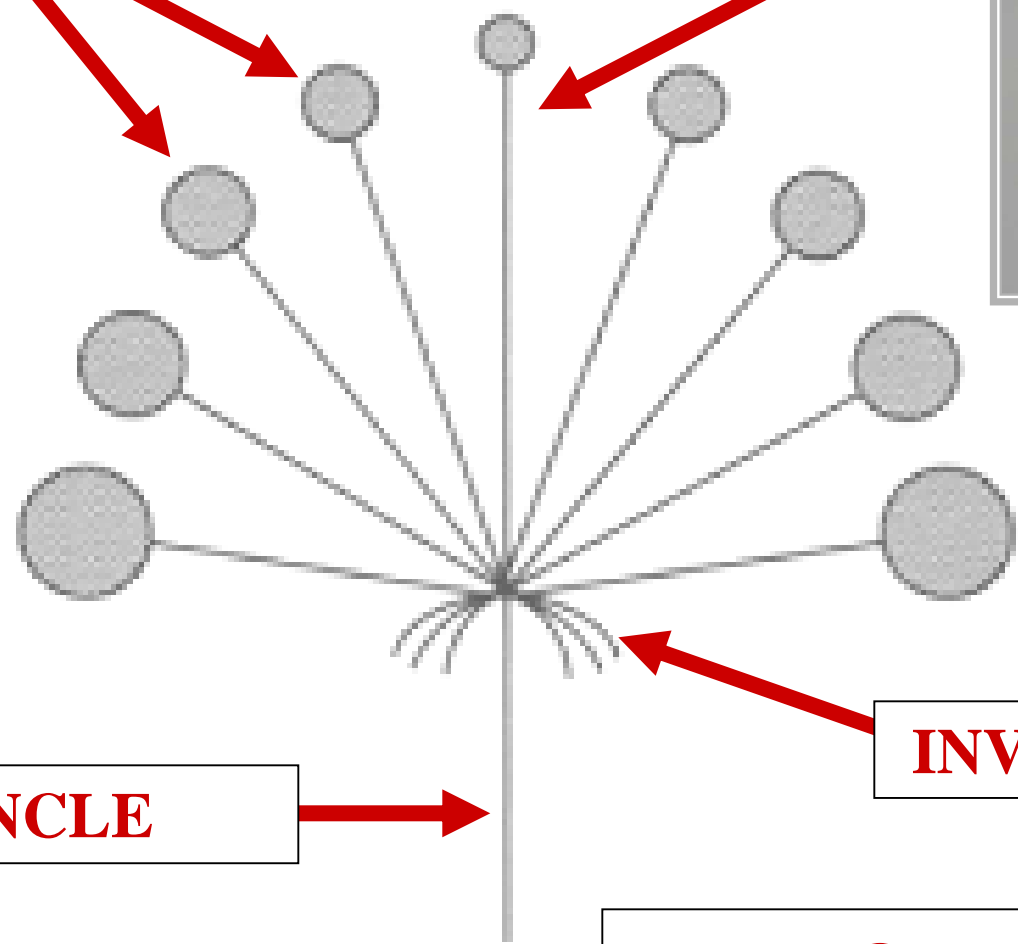
**PEDUNCLE**

7

**INFLORESCENCE**

**FLOWERS**

**PEDICEL**



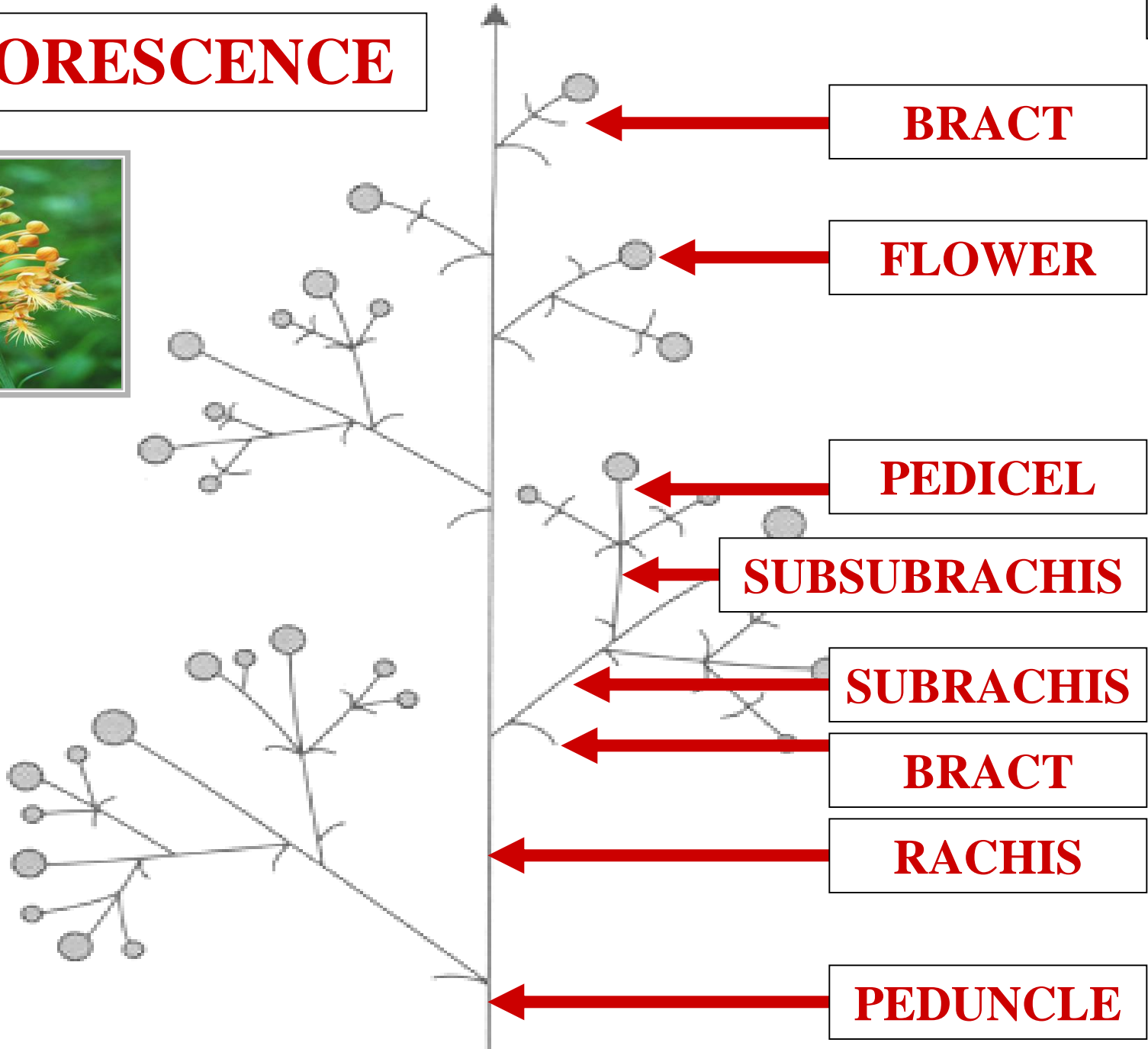
**PEDUNCLE**

**INVOLUCRE**

**INFLORESCENCE**



# INFLORESCENCE



**BRACT**

**FLOWER**

**PEDICEL**

**SUBSUBBRACHIS**

**SUBBRACHIS**

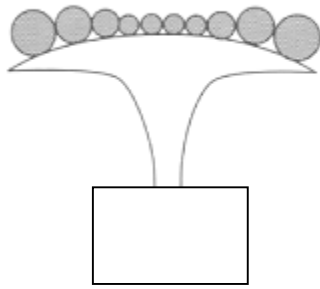
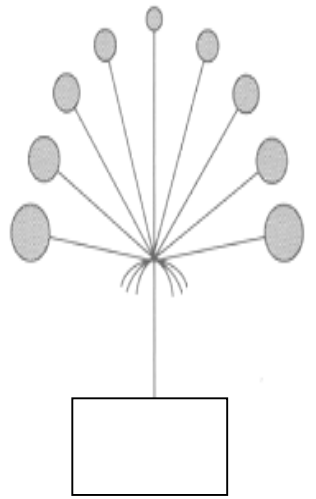
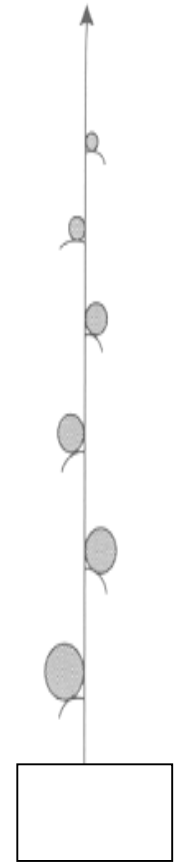
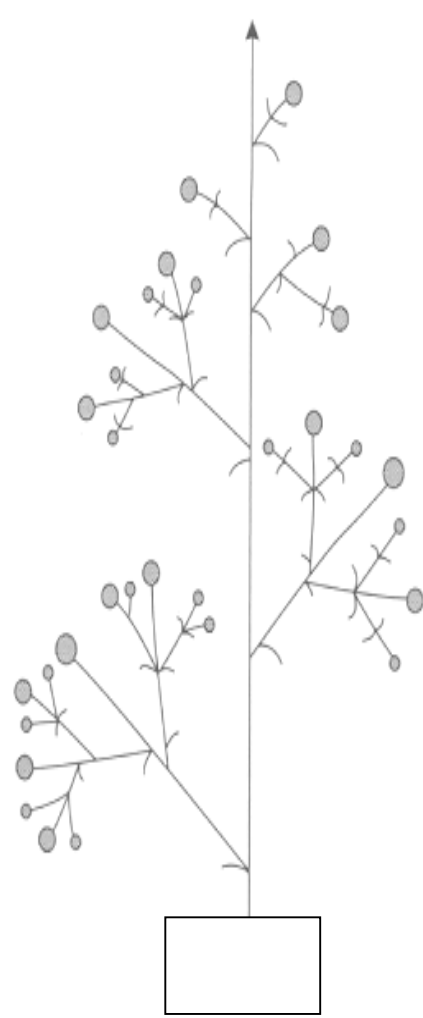
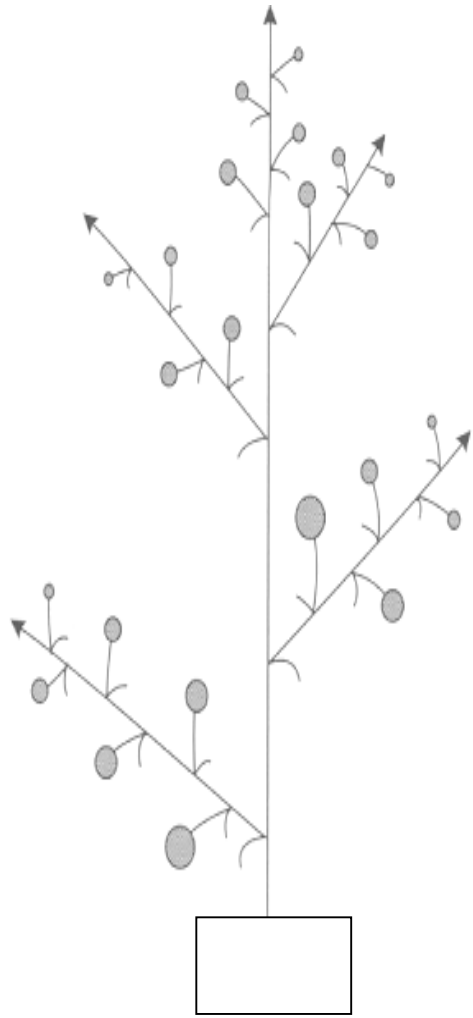
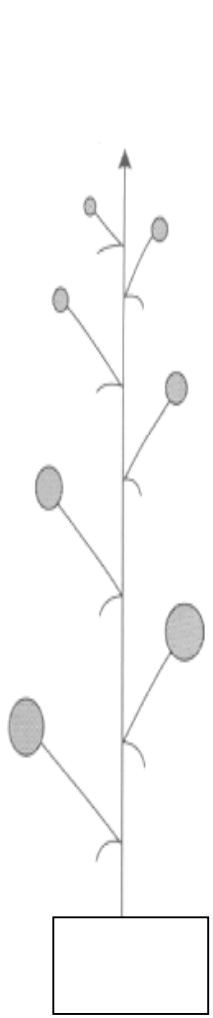
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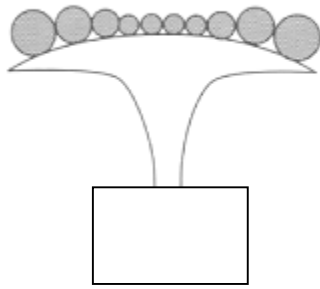
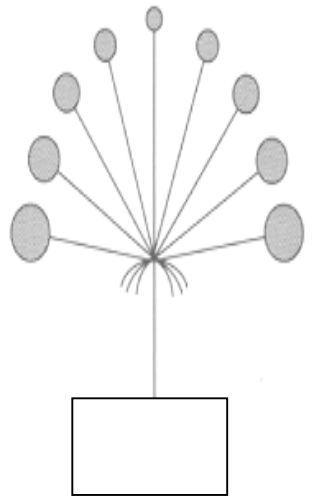
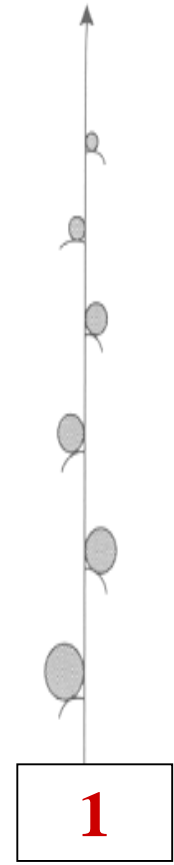
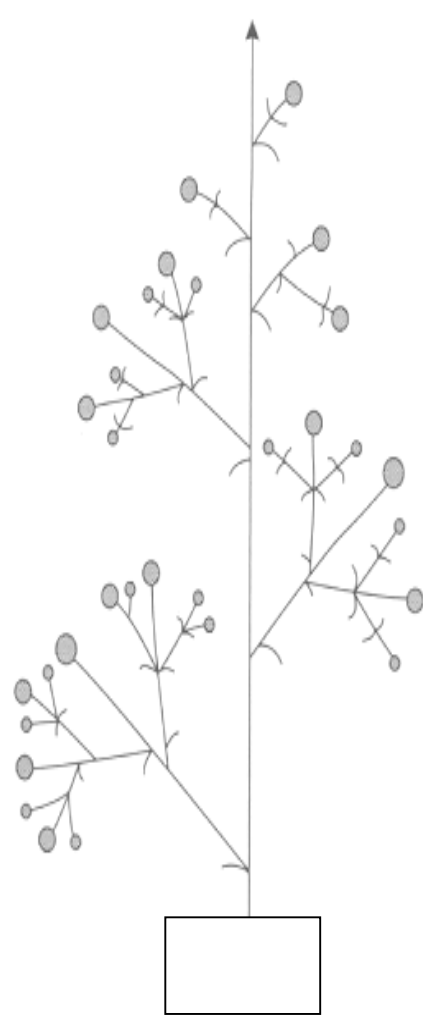
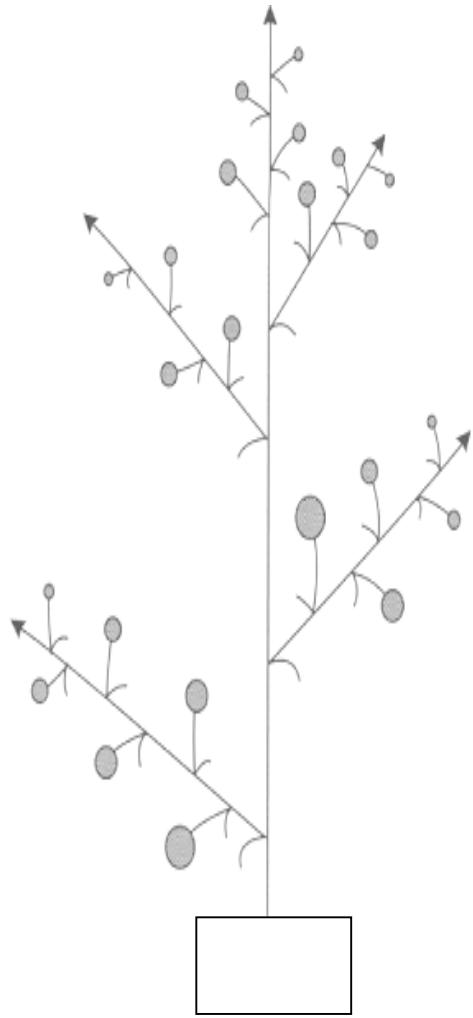
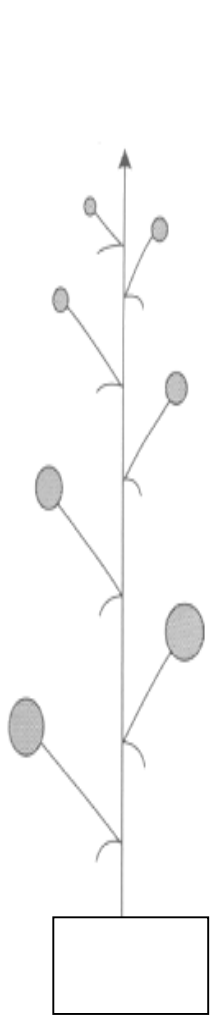
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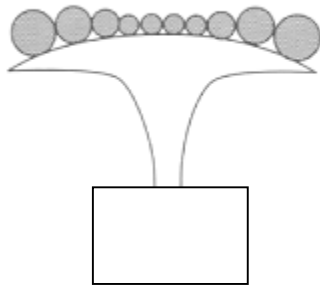
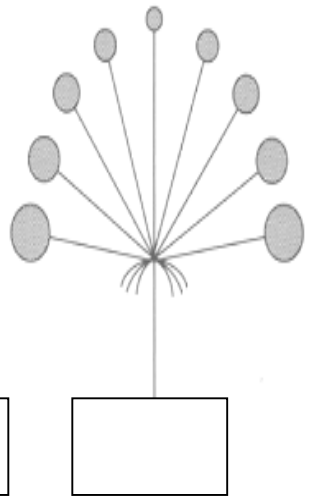
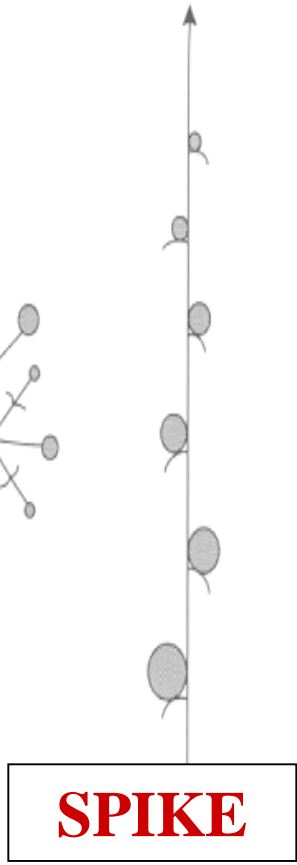
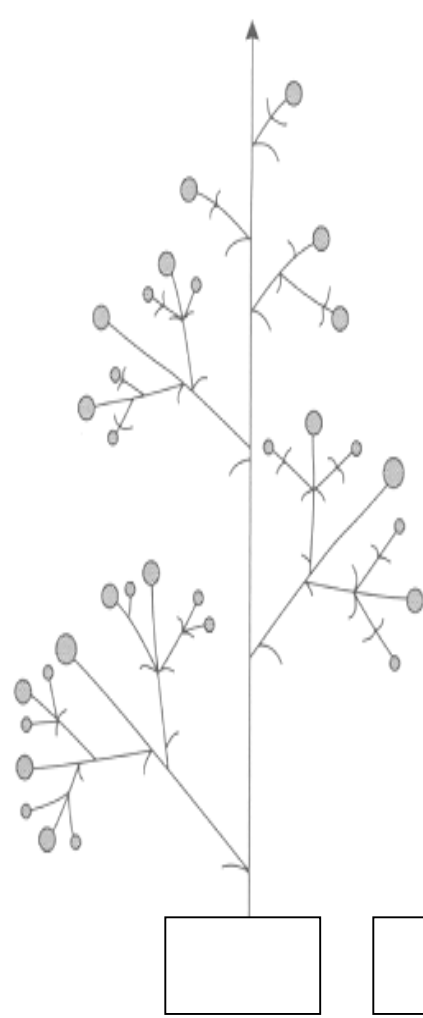
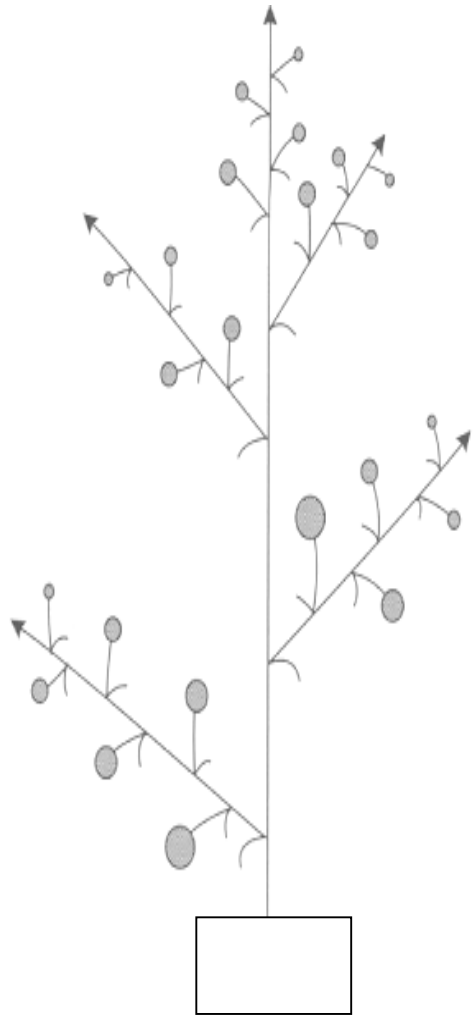
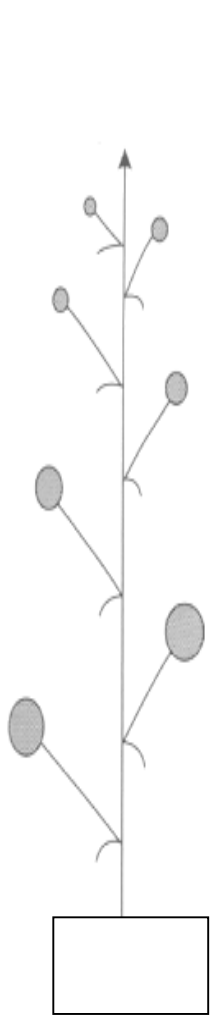
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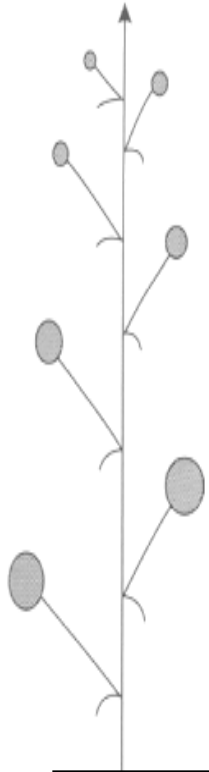


# INFLORESCENCE TYPES

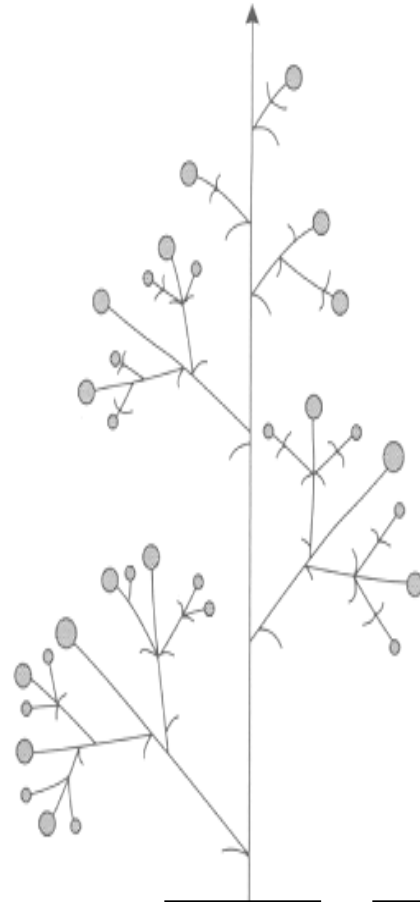
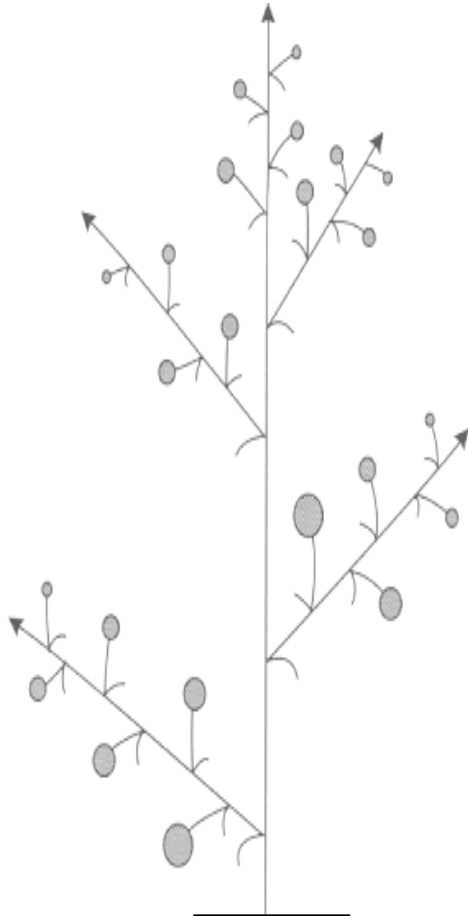




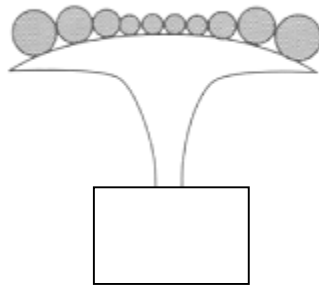
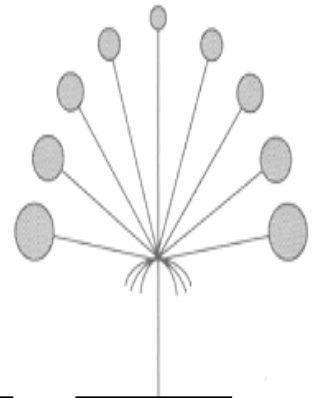


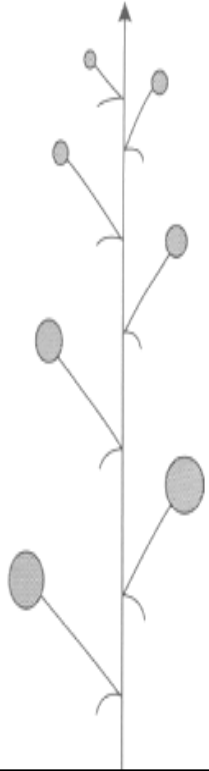


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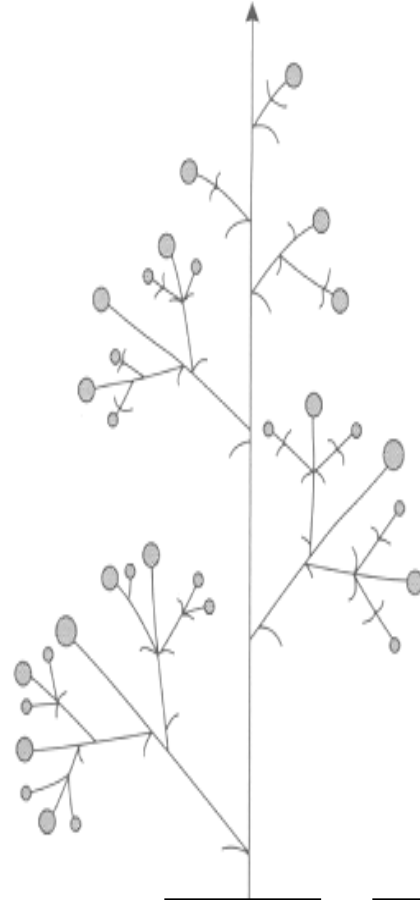


SPIKE

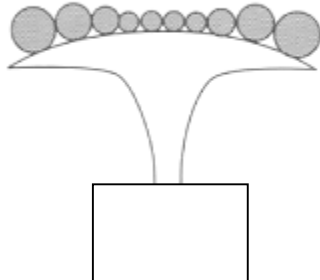
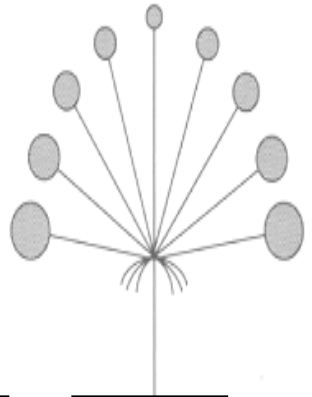


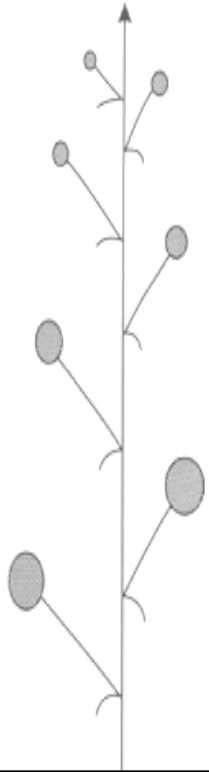


**RACEME**

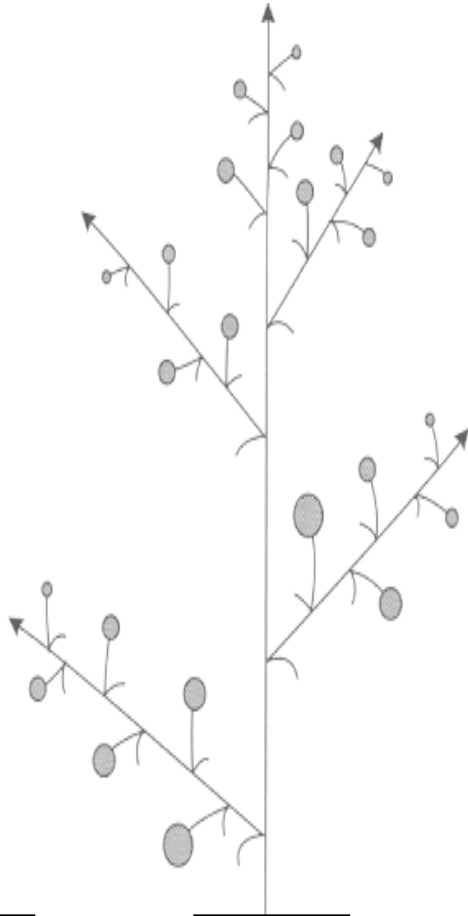


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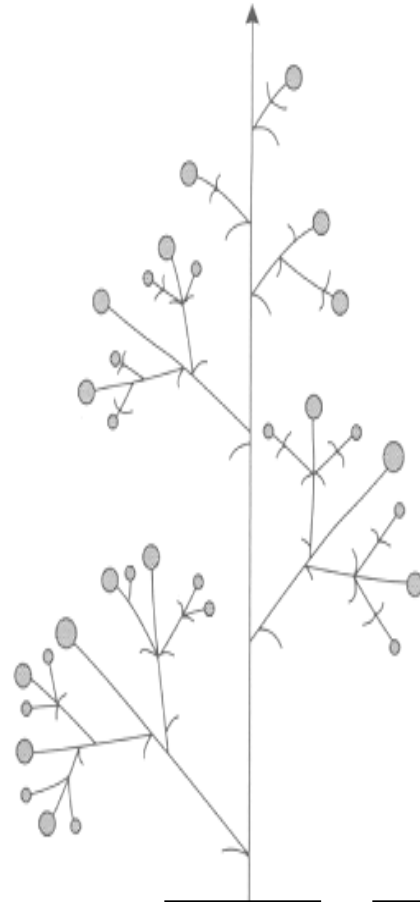




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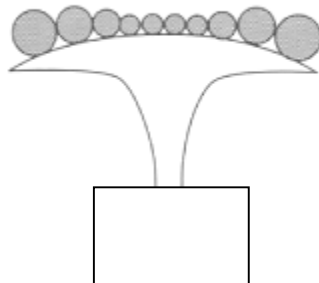
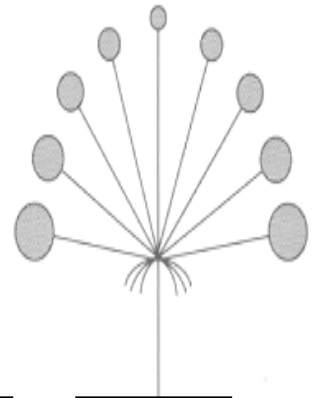
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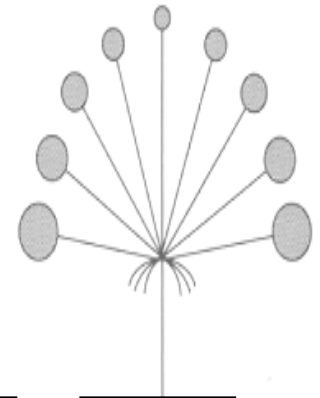
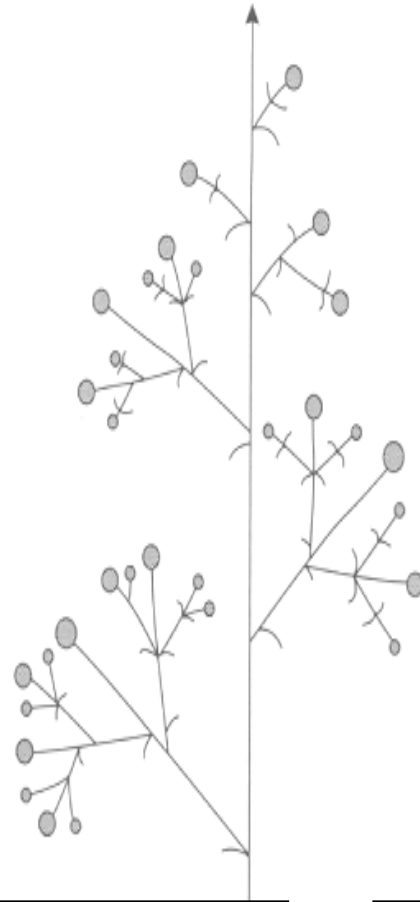
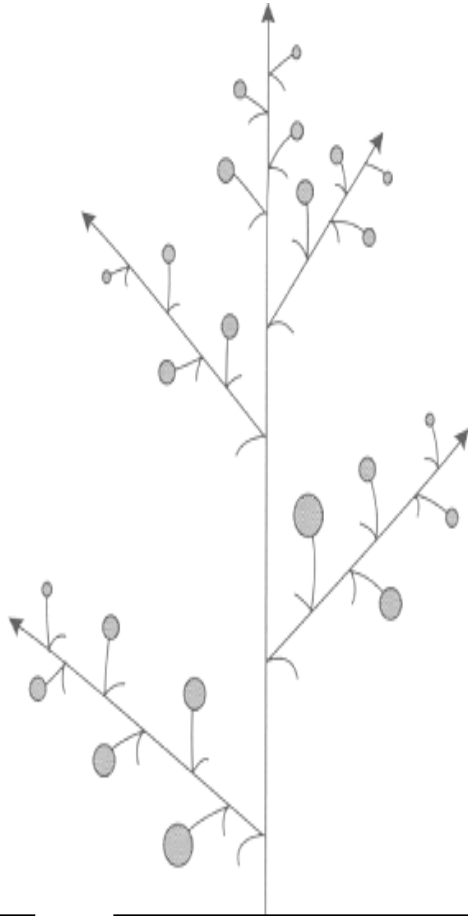
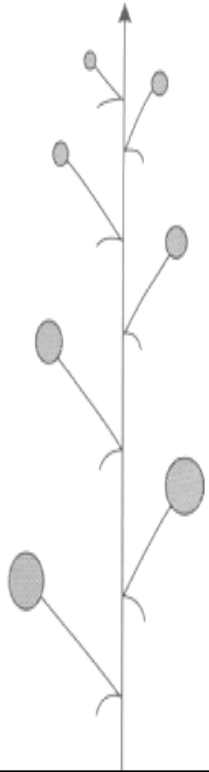
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**SPIKE**



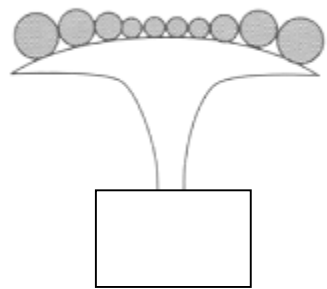


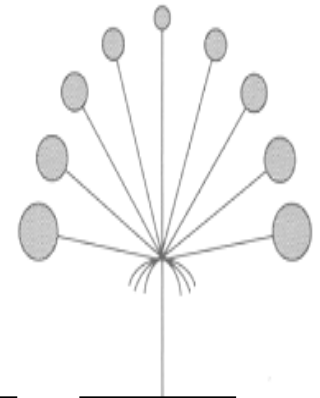
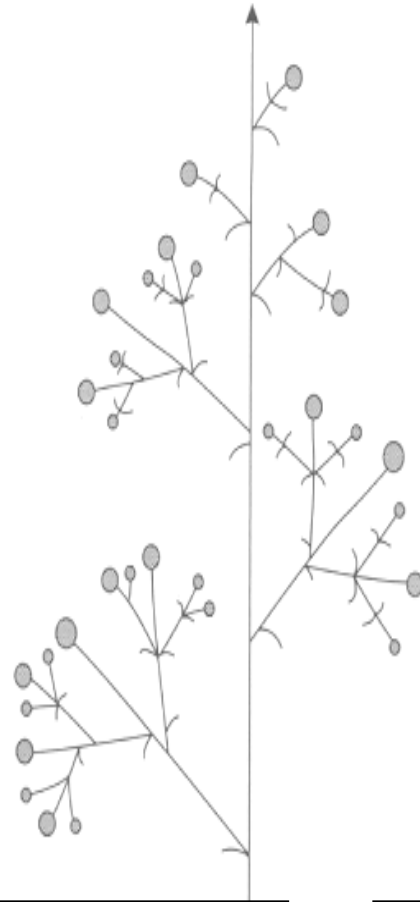
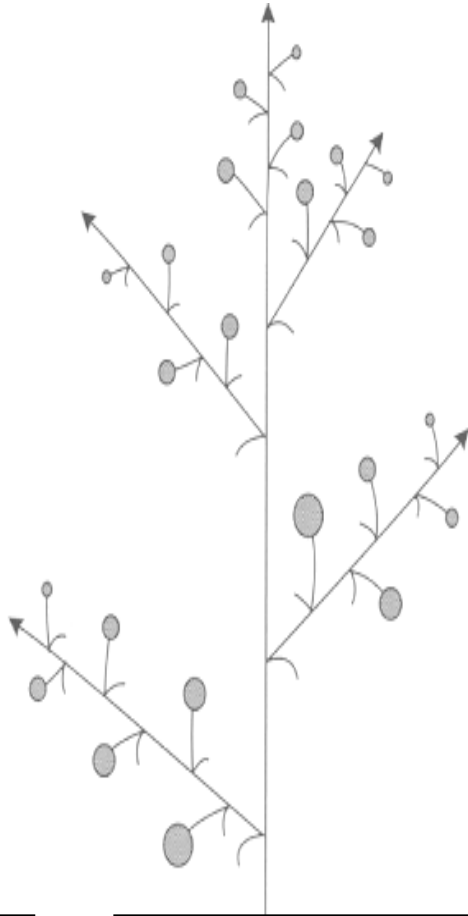
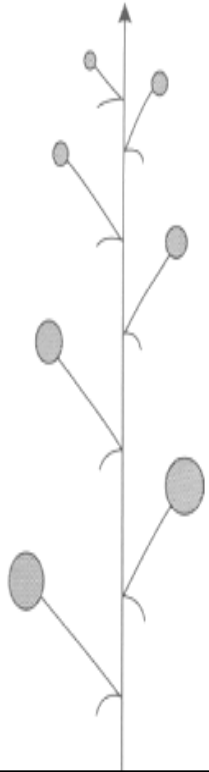


**RACEME**

**PANICLE**

**SPIKE**



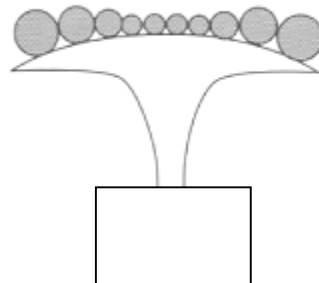


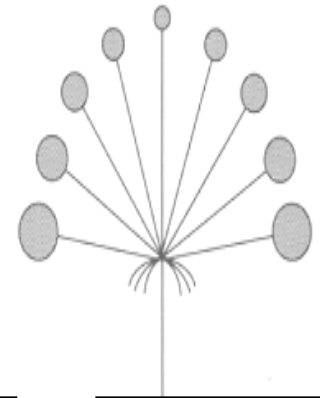
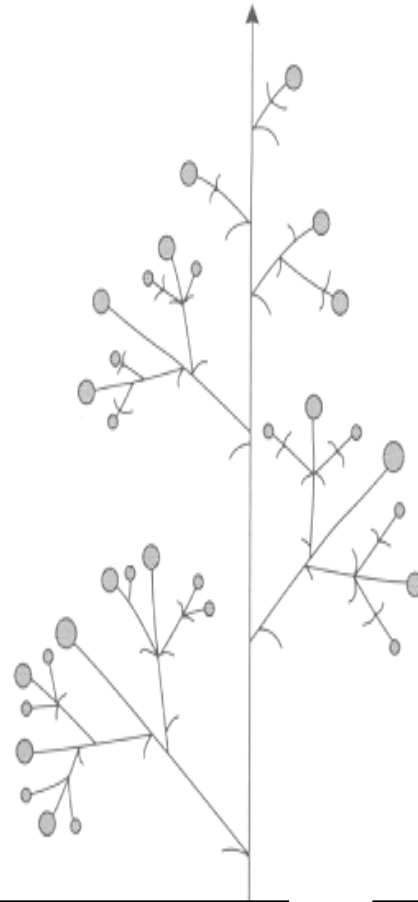
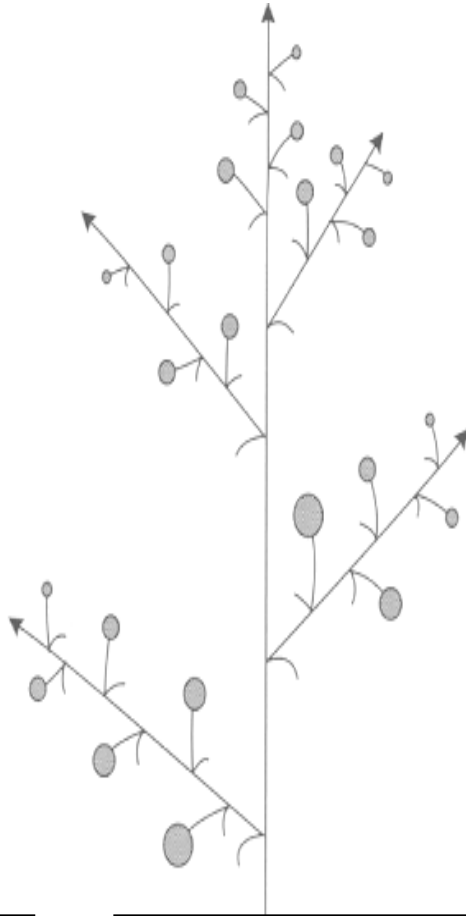
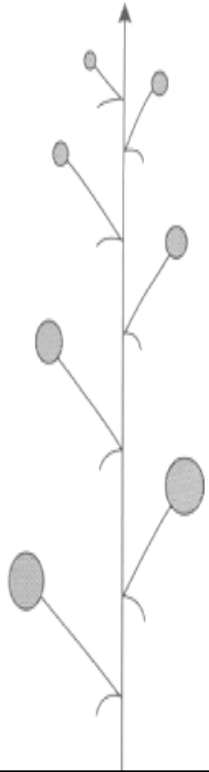
**RACEME**

**PANICLE**

**SPIKE**

**4**



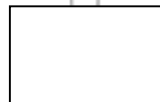
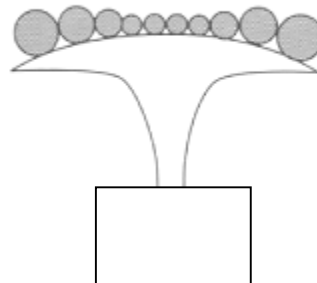


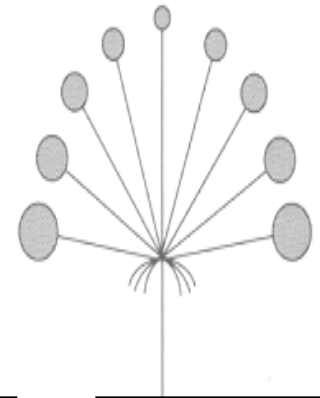
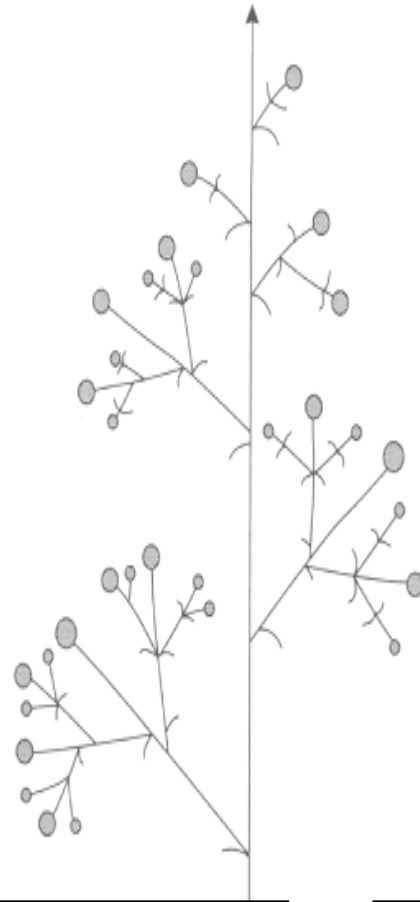
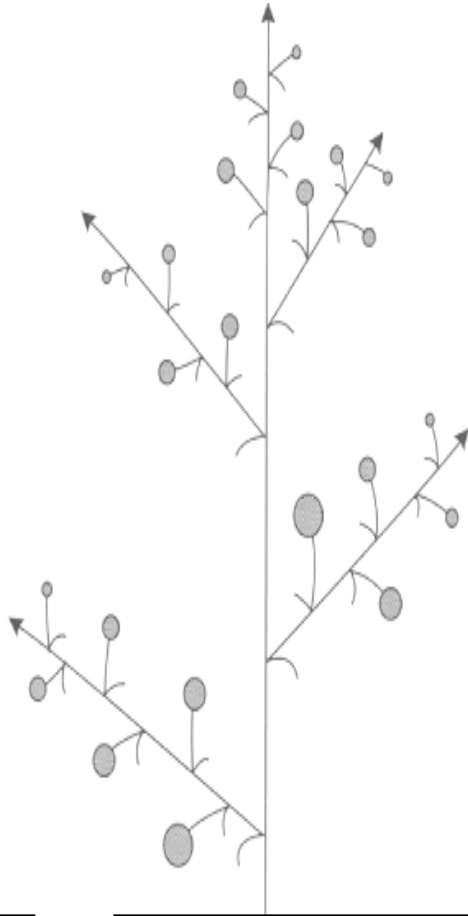
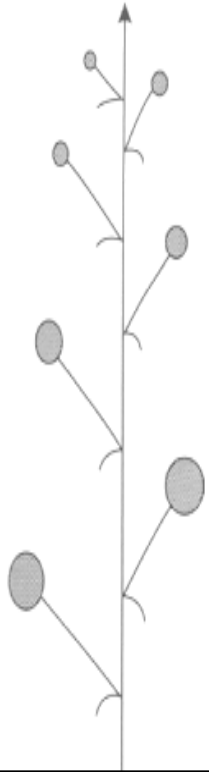
**RACEME**

**PANICLE**

**SPIKE**

**UMBEL**



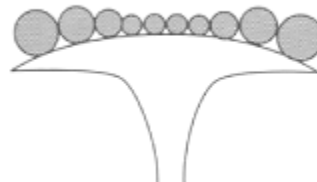


**RACEME**

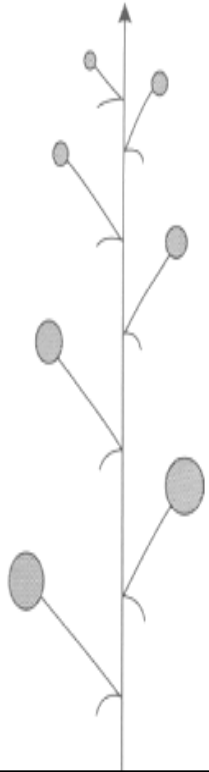
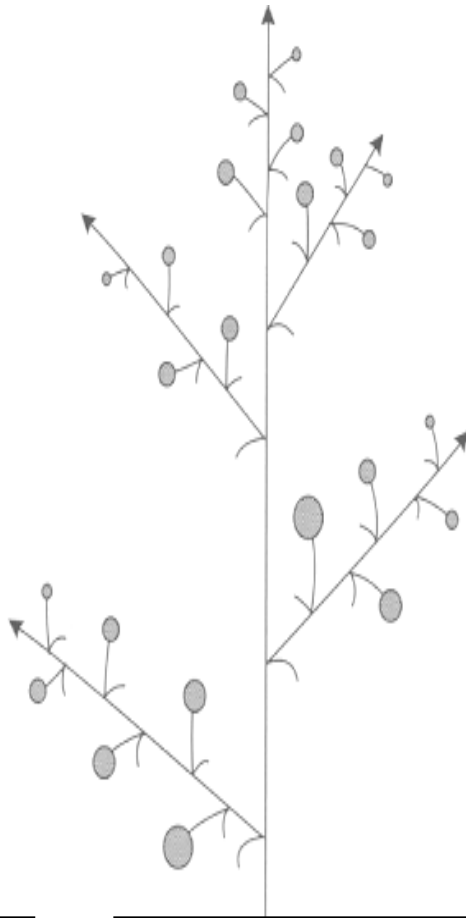
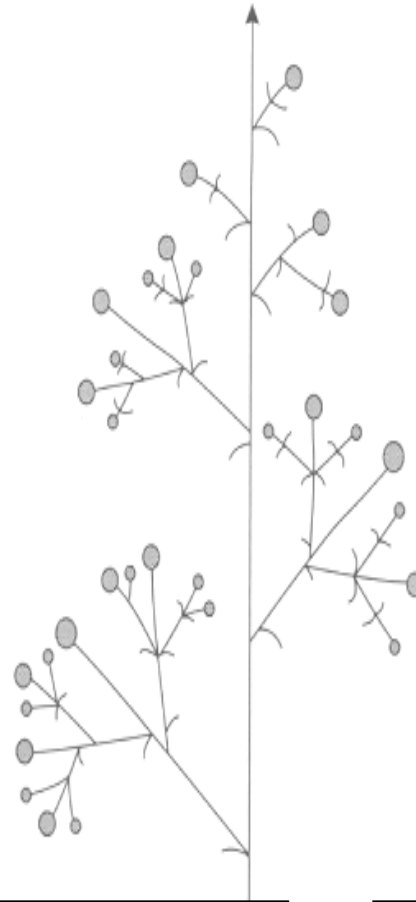
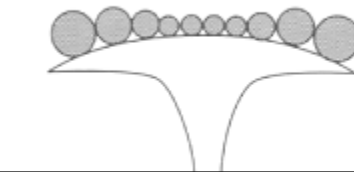
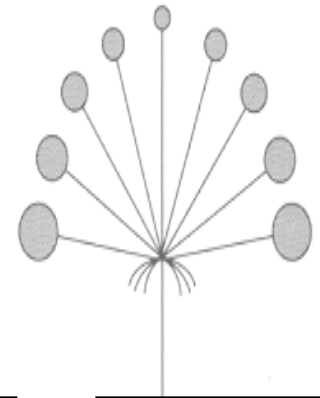
**PANICLE**

**SPIKE**

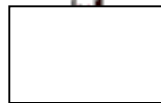
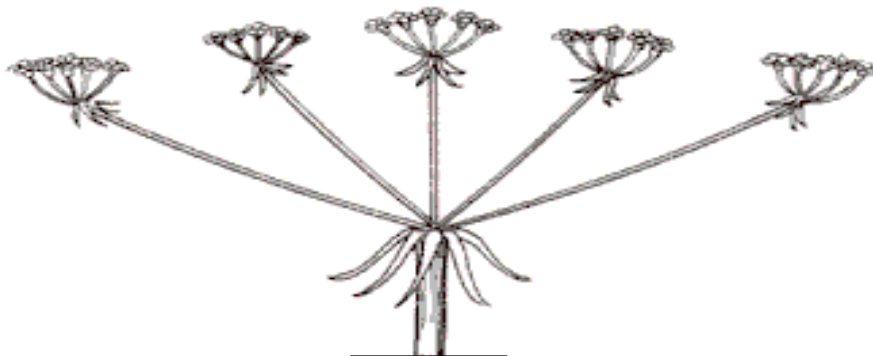
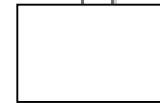
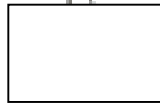
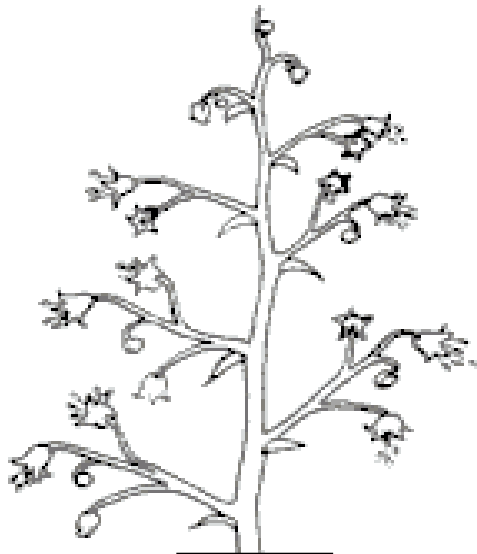
**UMBEL**

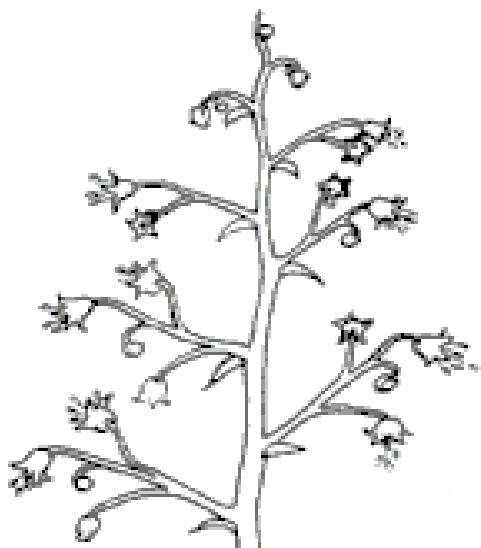


**5**

**RACEME****PANICLE****SPIKE****UMBEL****CAPITULUM**

# **INFLORESCENCE TYPES SUMMARY**





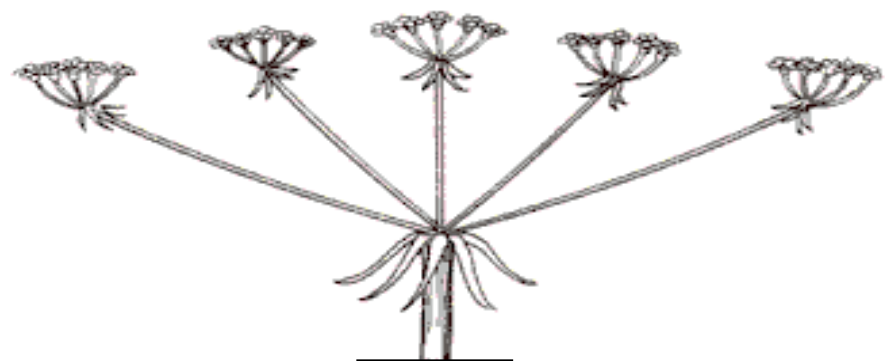
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**SPIKE**



[ ]

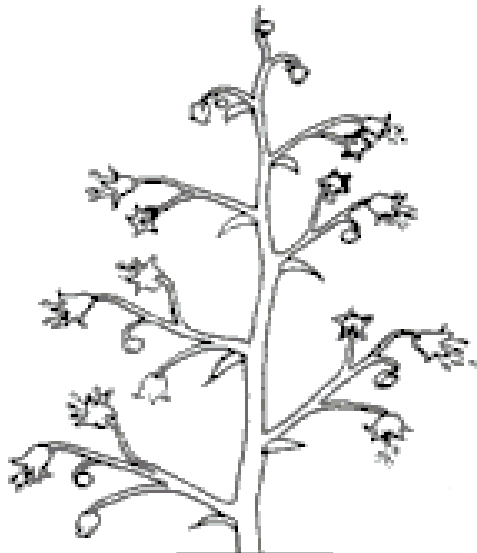


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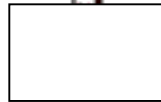
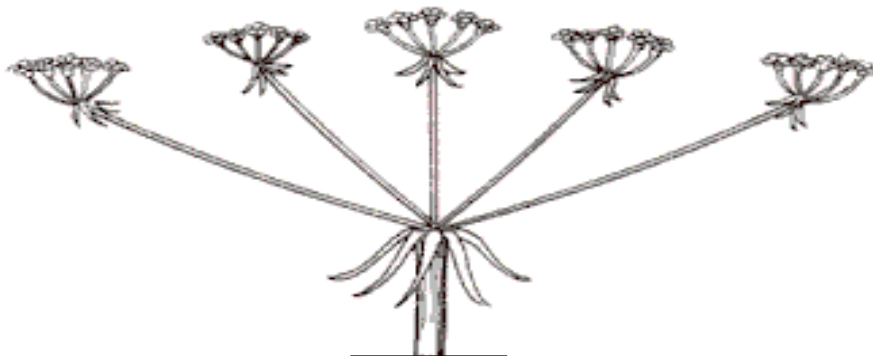


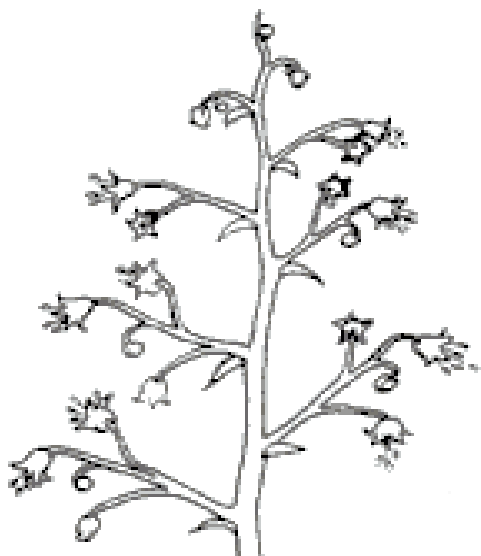


**SPIKE**



**2**





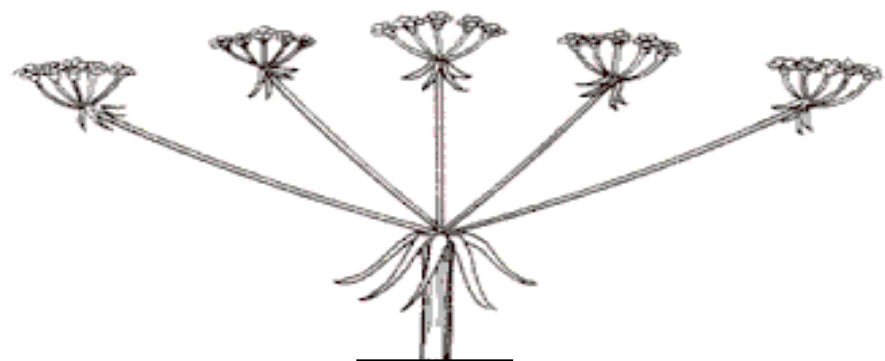
[ ]



**SPIKE**



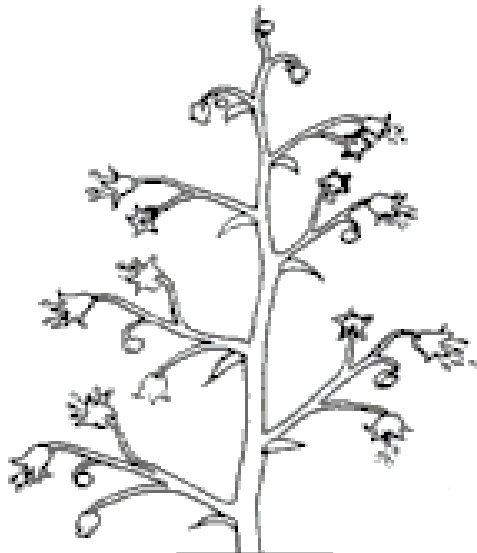
**RACEME**



[ ]



[ ]



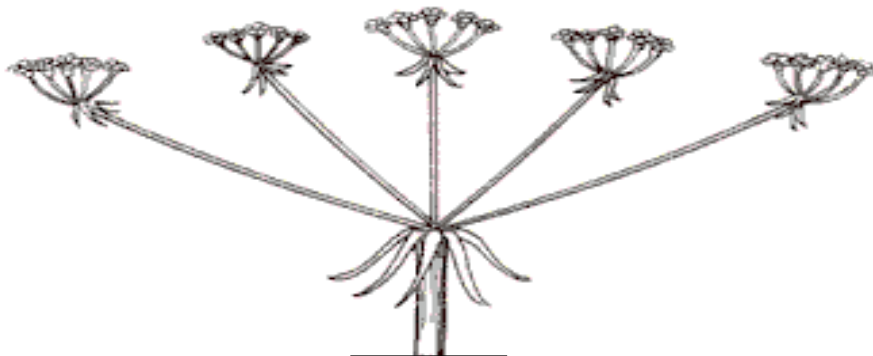
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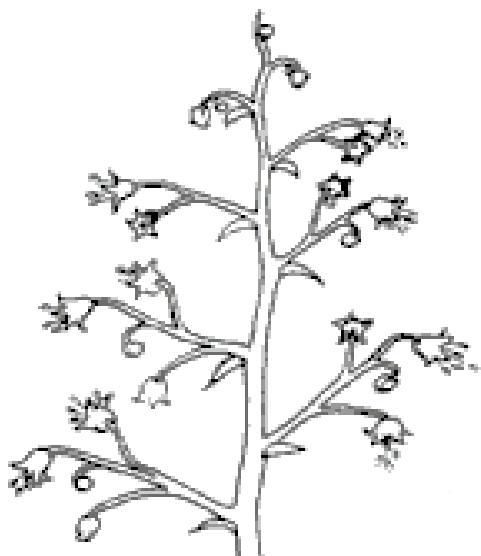


SPIKE



RACEME





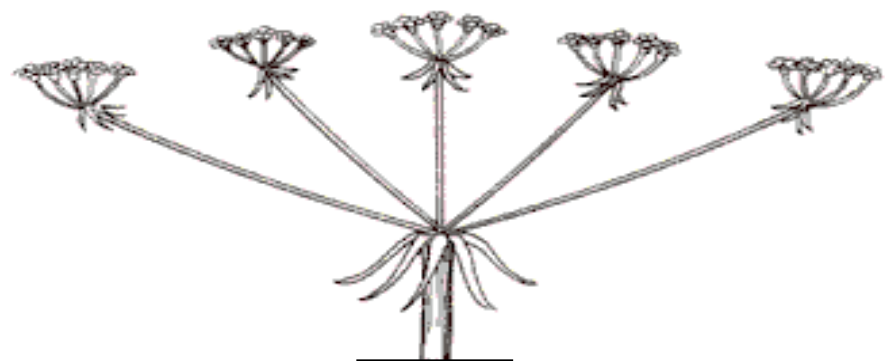
**PANICLE**

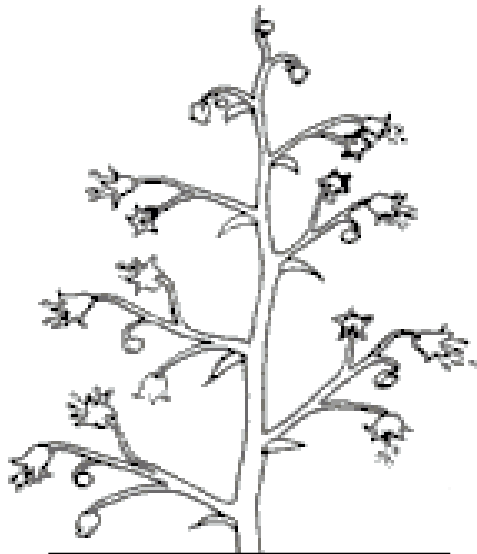


**SPIKE**



**RACEME**





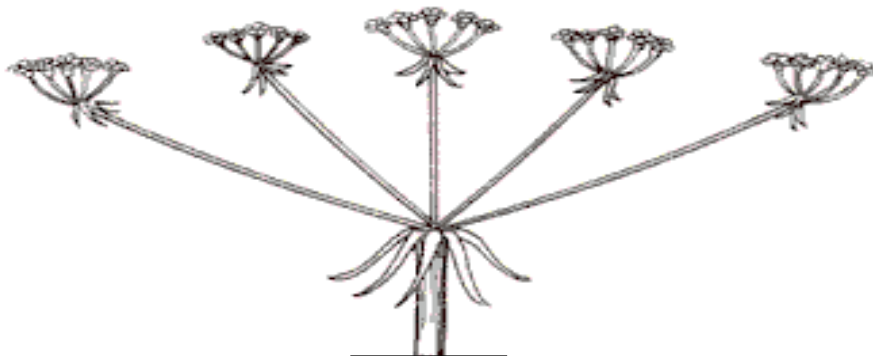
**PANICLE**



**SPIKE**

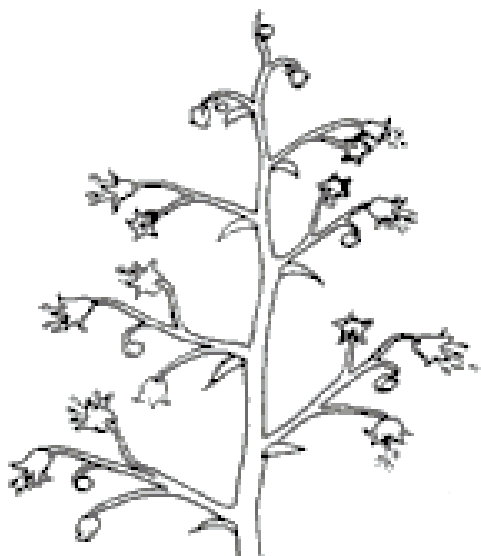


**RACEME**



**4**





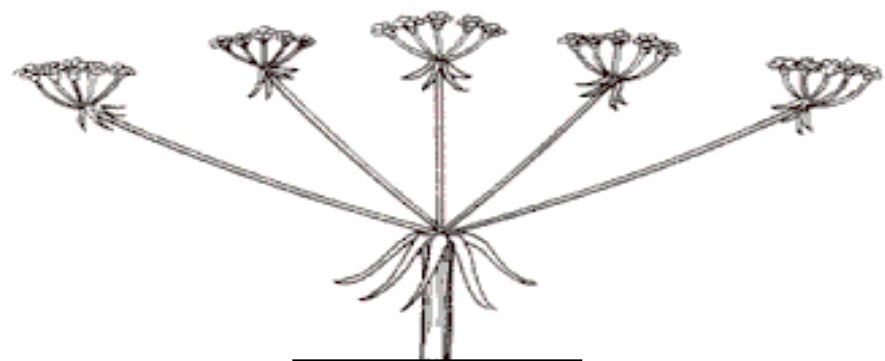
**PANICLE**



**SPIKE**

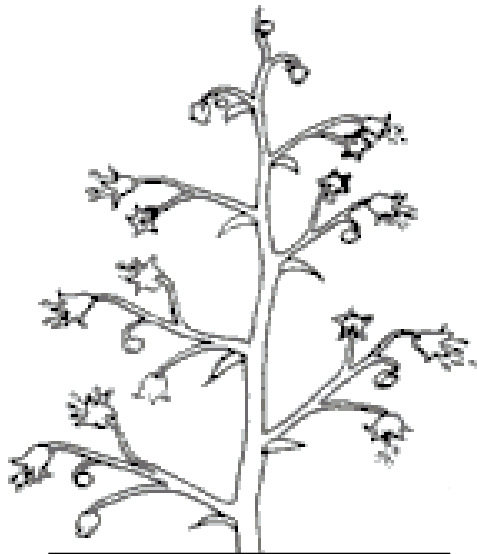


**RACEME**



**UMBEL**





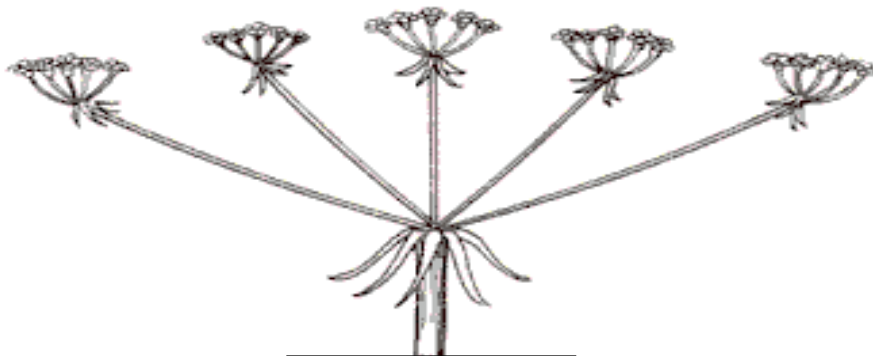
**PANICLE**



**SPIKE**



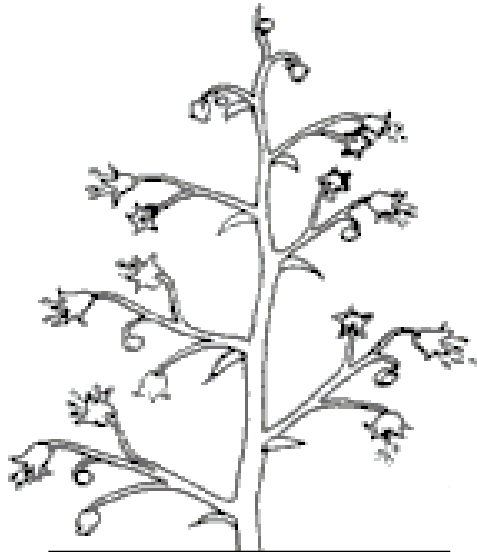
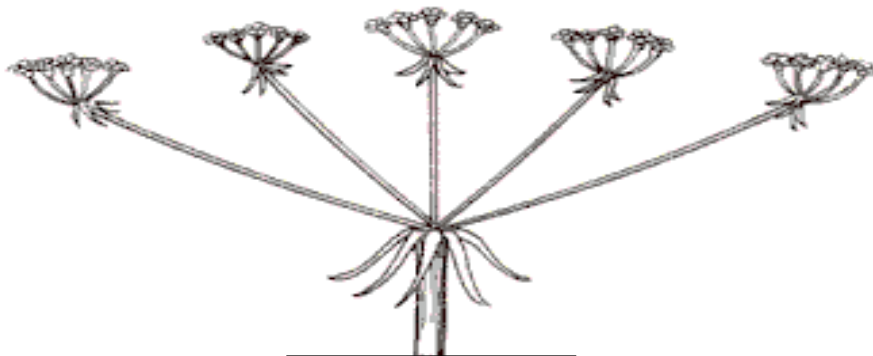
**RACEME**



**UMBEL**



**5**

**PANICLE****SPIKE****RACEME****UMBEL****CAPITULUM**





# **INFLORESCENCE TYPES APPLIED**



**RACEME**





**UMBEL**





**CAPITULUM**



**FLOWER  
MORPHOLOGY  
&  
ANATOMY**





**FLOWER**

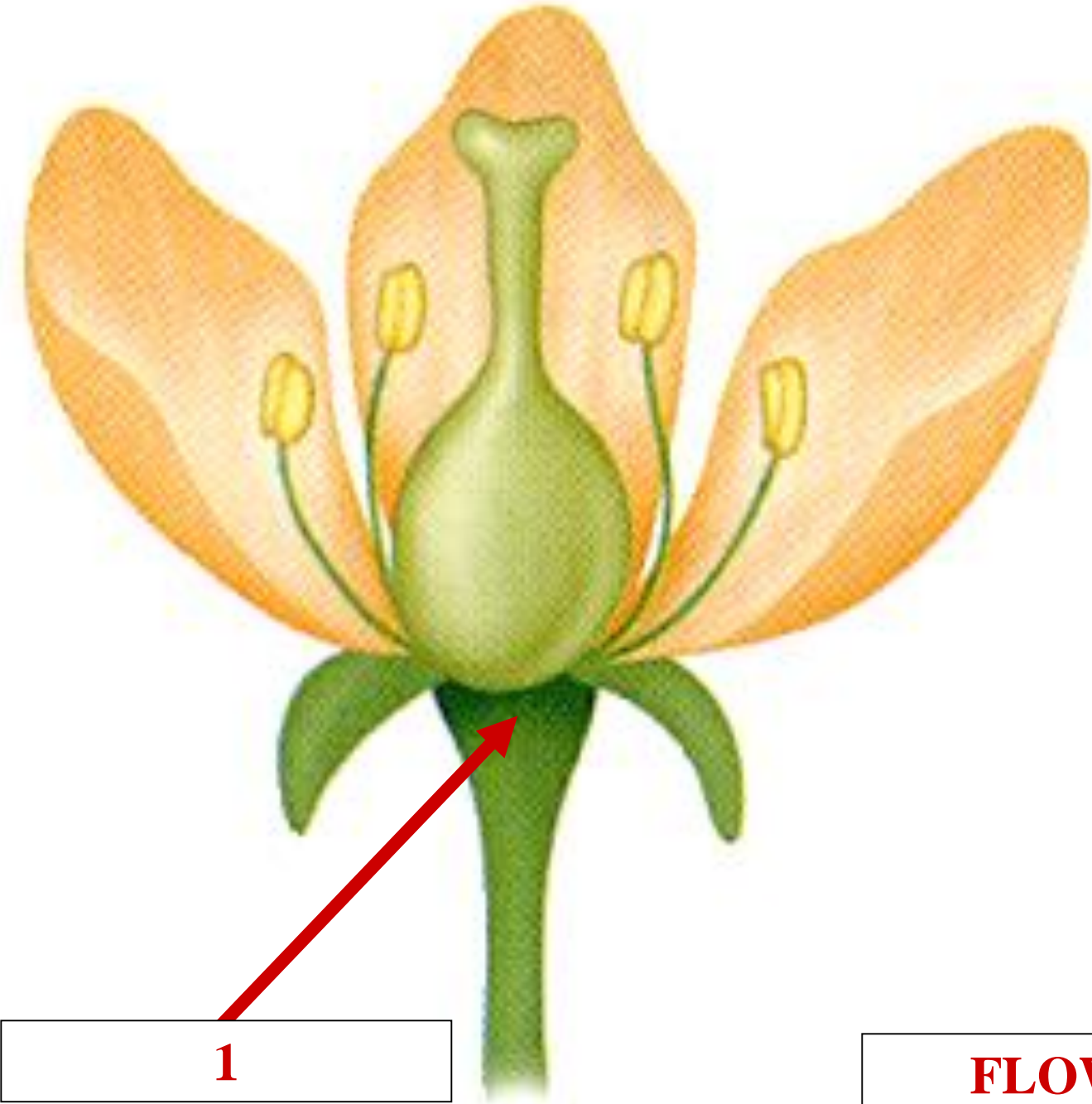




# FLOWER SEGMENTS & WHORLS

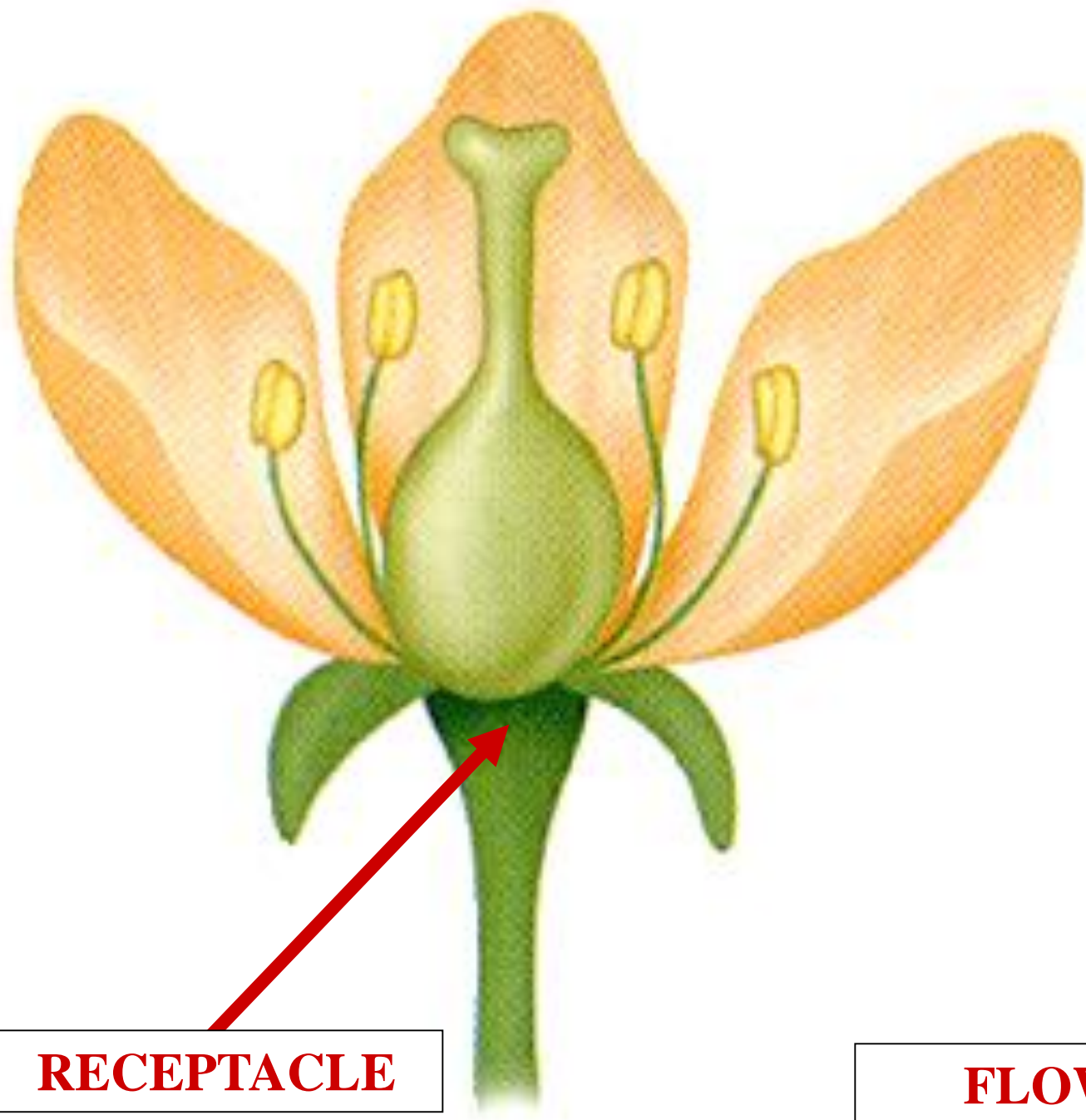


**FLOWER**



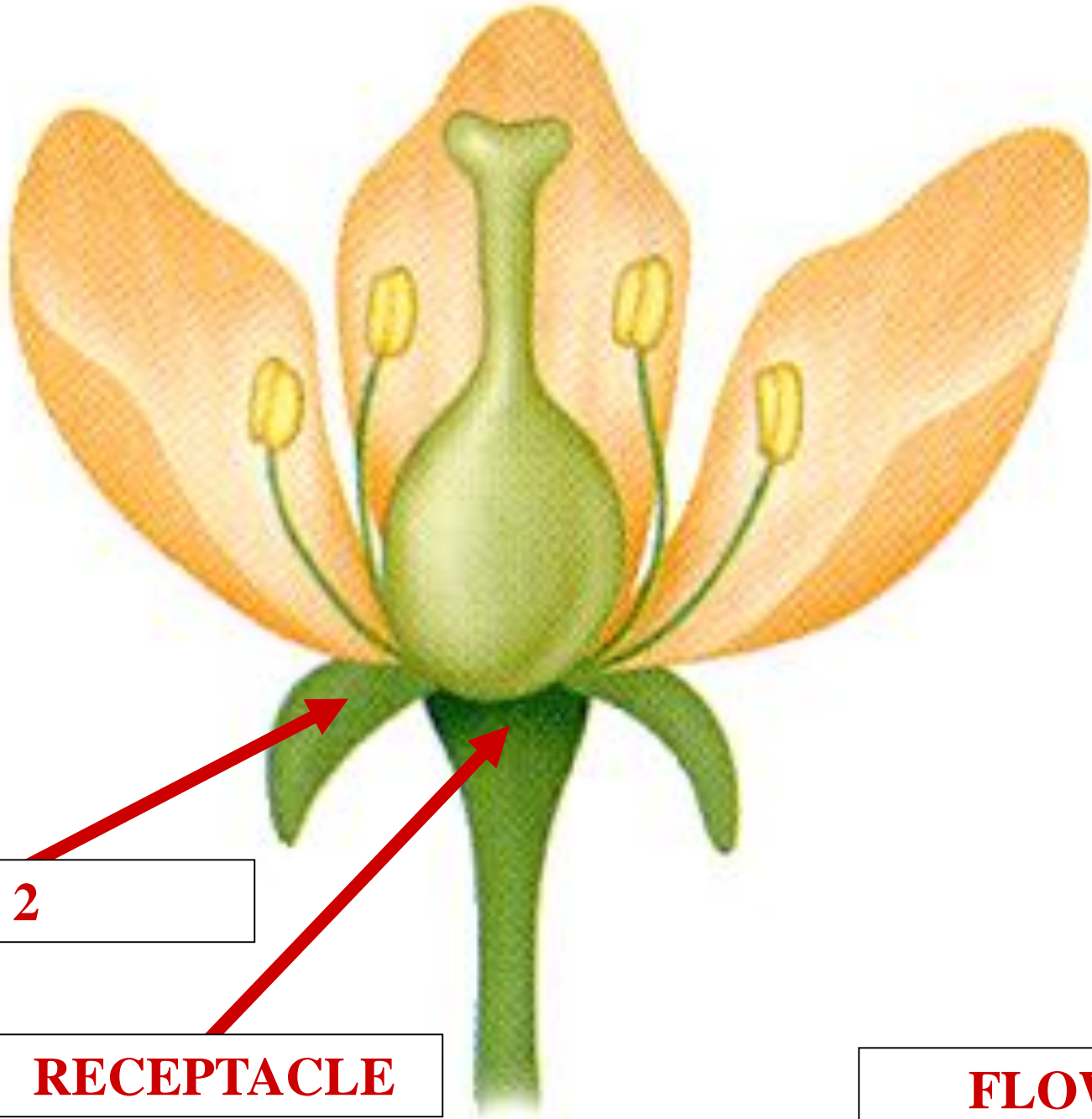
1

**FLOWER**



**RECEPTACLE**

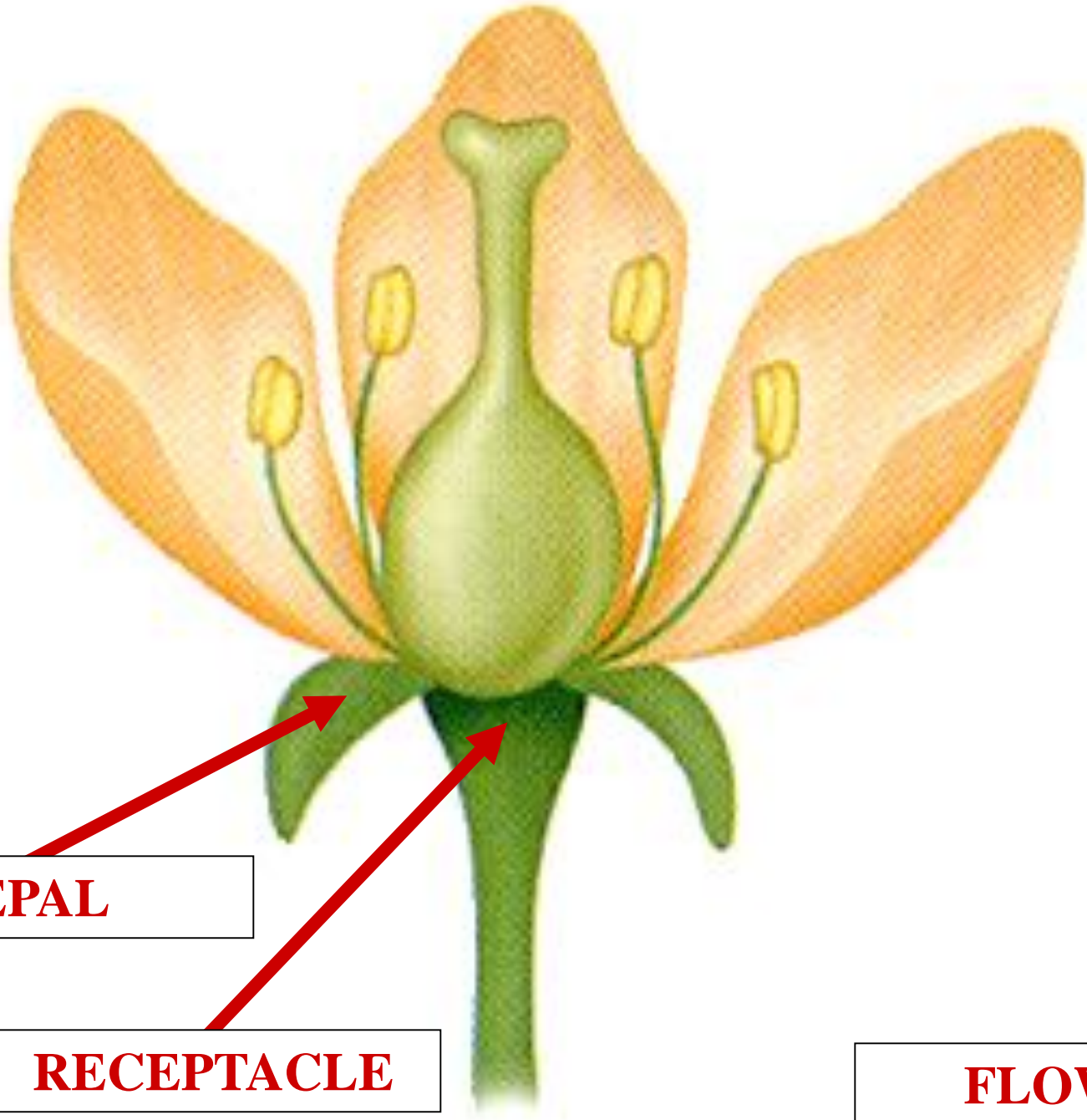
**FLOWER**



2

RECEPTACLE

FLOWER

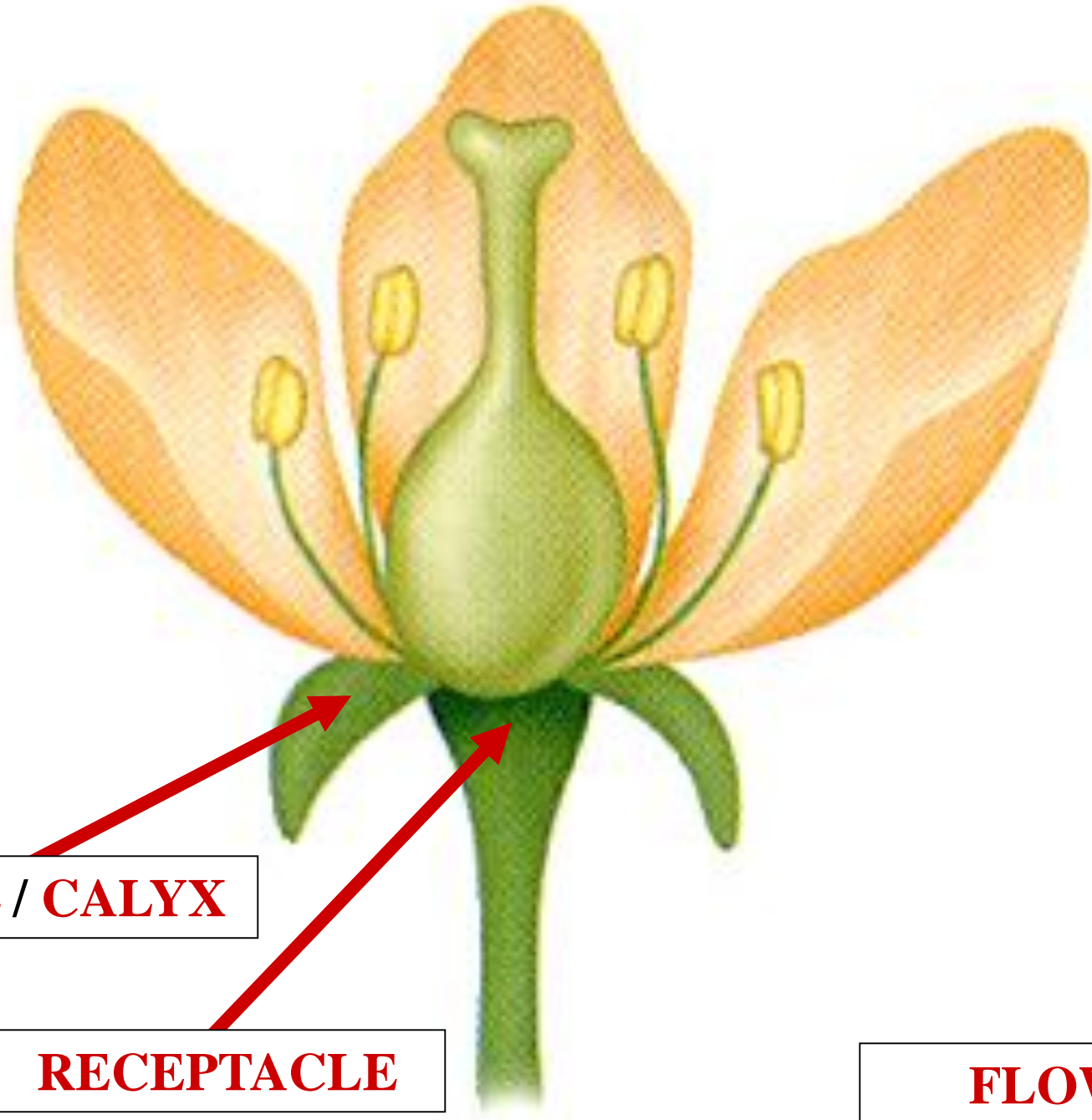


**SEPAL**

**RECEPTACLE**

**FLOWER**

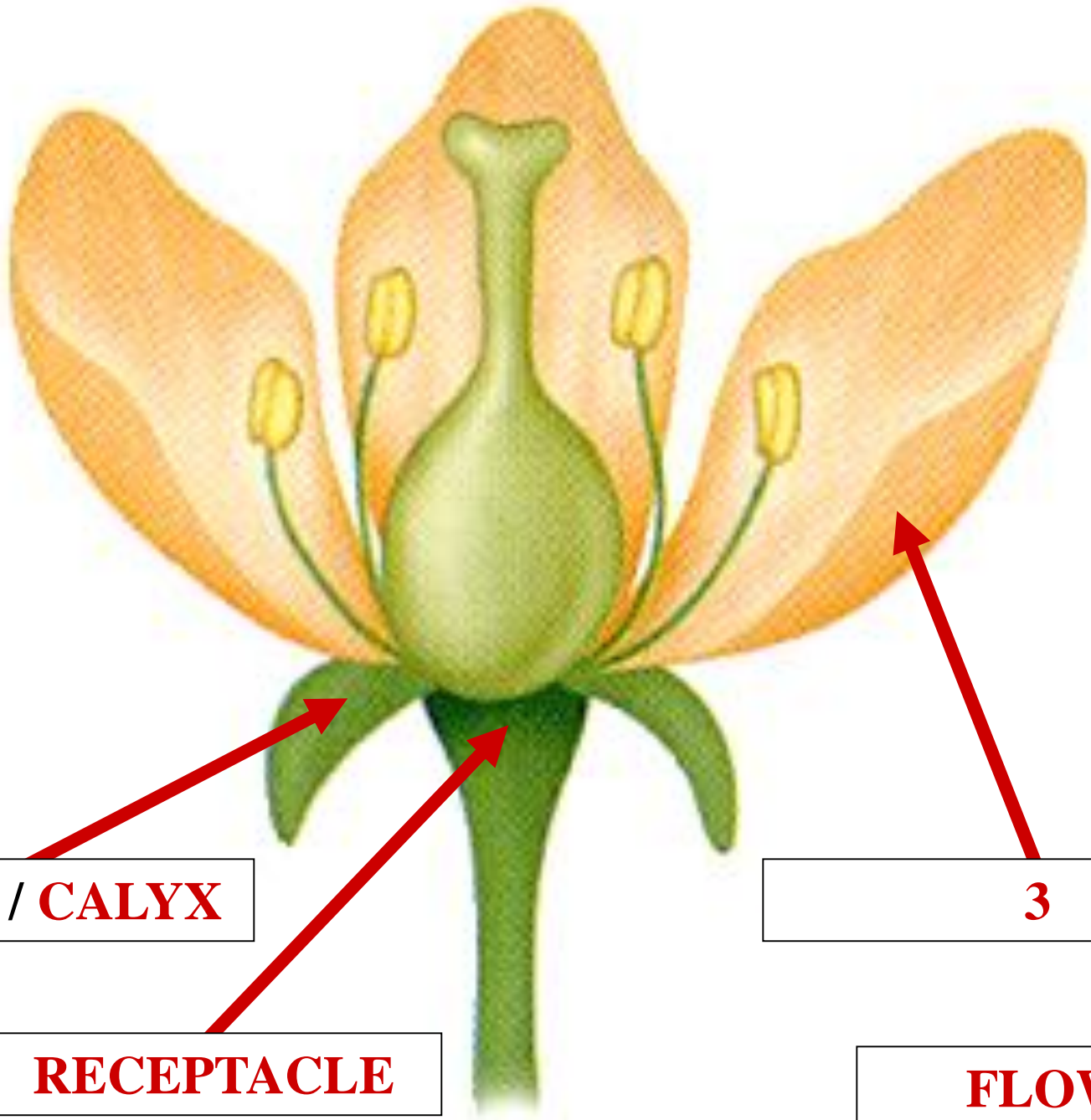




**SEPAL / CALYX**

**RECEPTACLE**

**FLOWER**

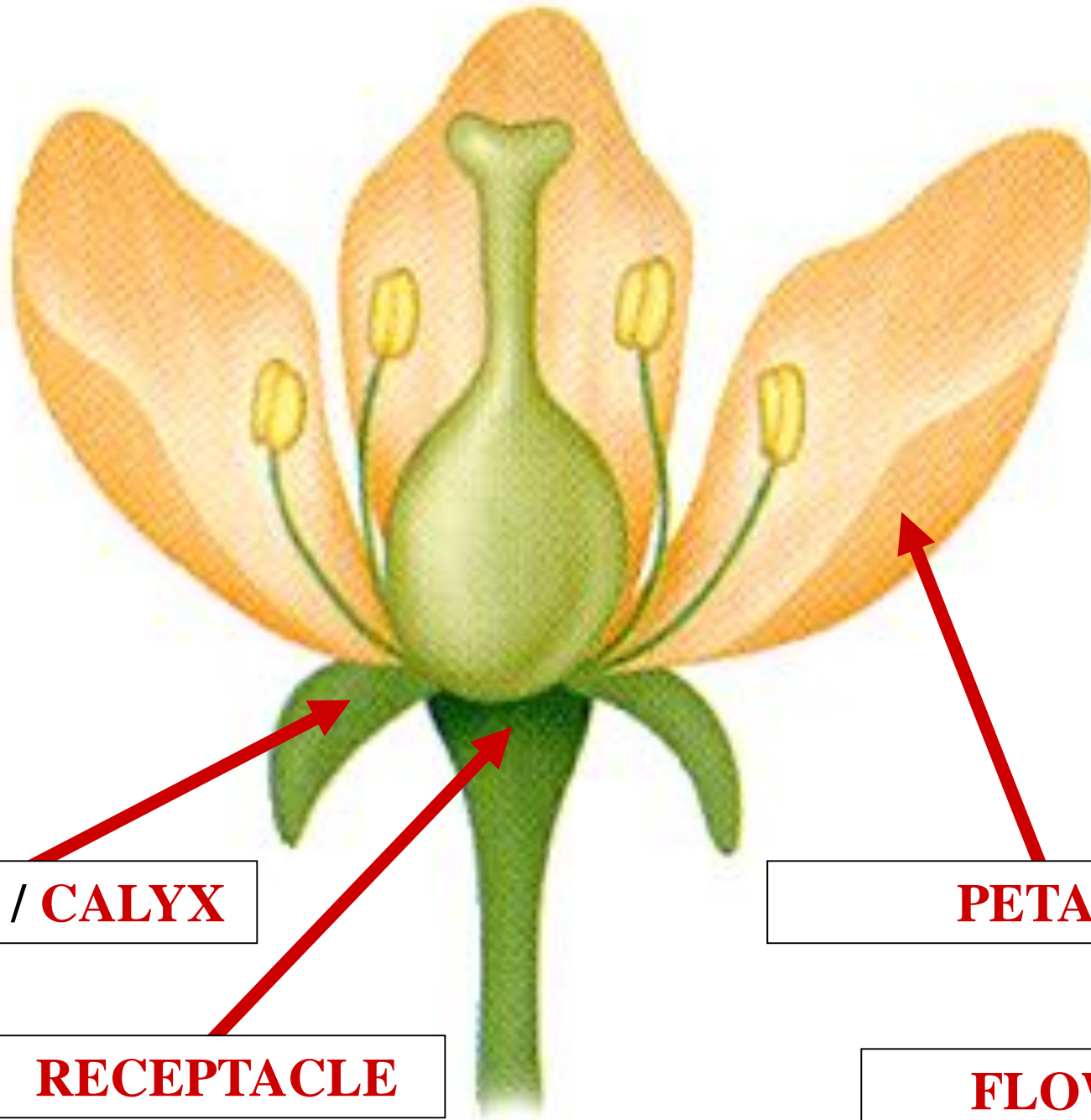


**SEPAL / CALYX**

**RECEPTACLE**

**3**

**FLOWER**

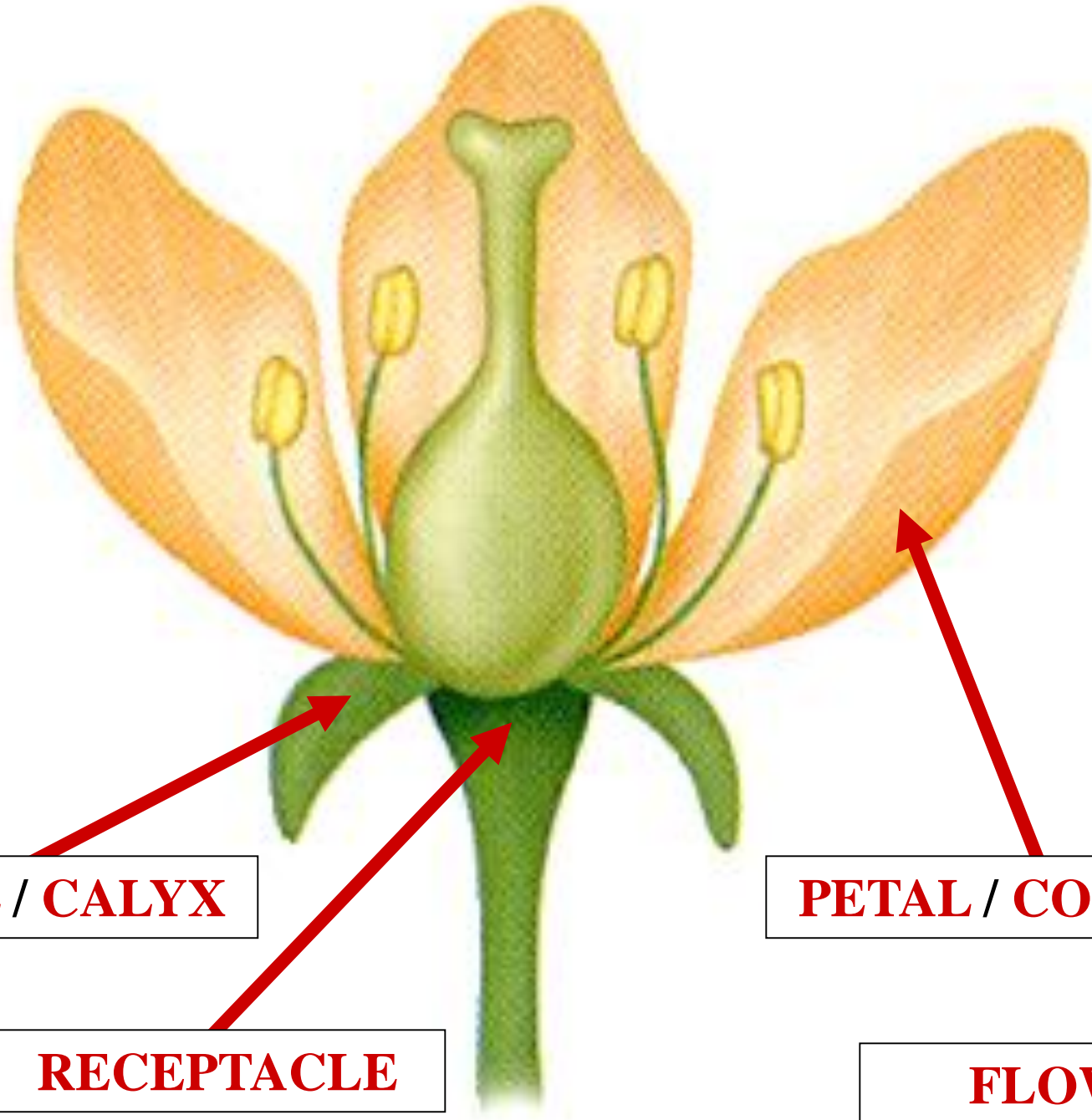


**SEPAL / CALYX**

**RECEPTACLE**

**PETAL**

**FLOWER**

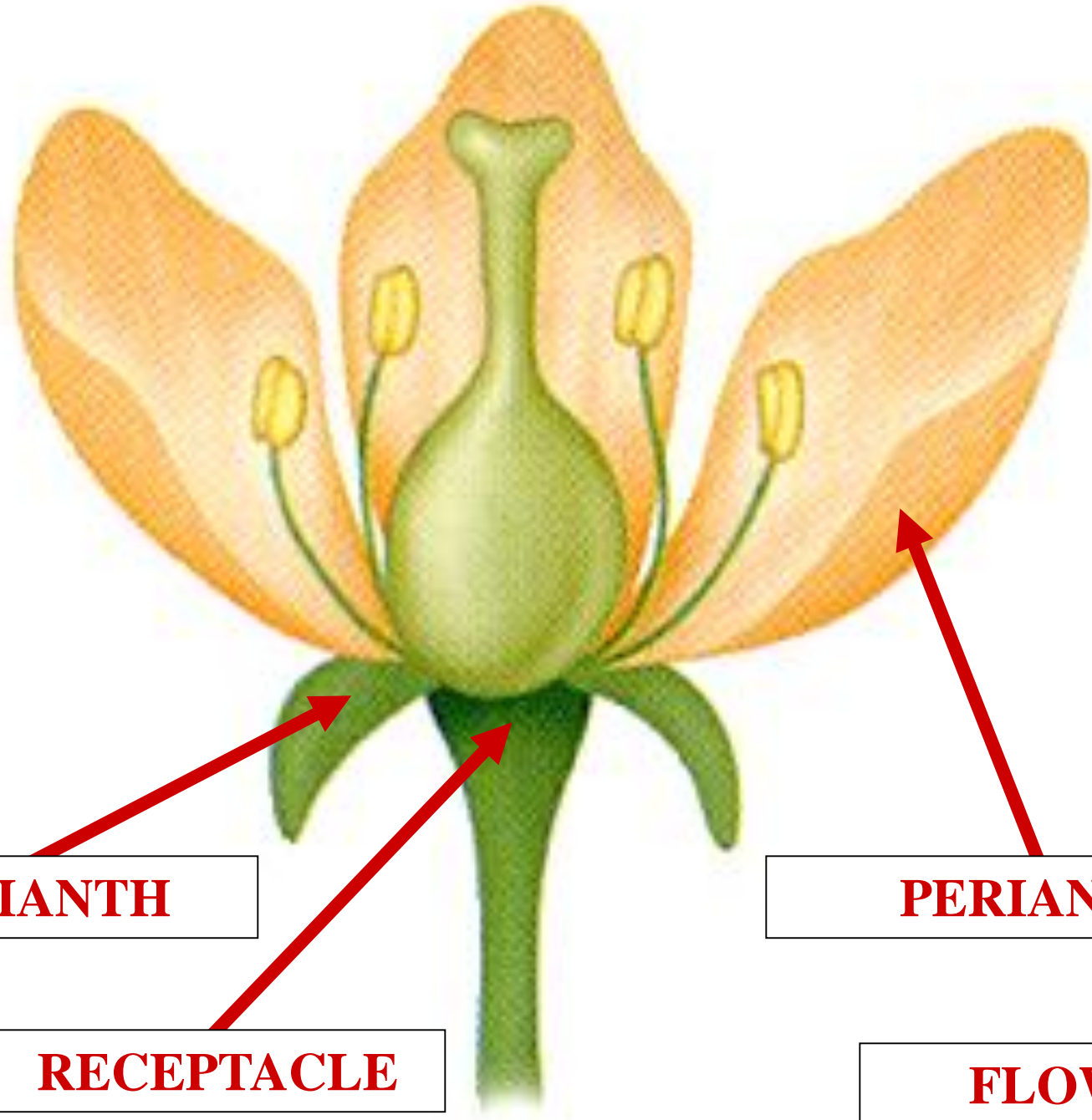


**SEPAL / CALYX**

**PETAL / COROLLA**

**RECEPTACLE**

**FLOWER**



**PERIANTH**

**RECEPTACLE**

**PERIANTH**

**FLOWER**

# **PERIANTH TERMS**



# TEPALS





**SEPAL**



**PETAL**



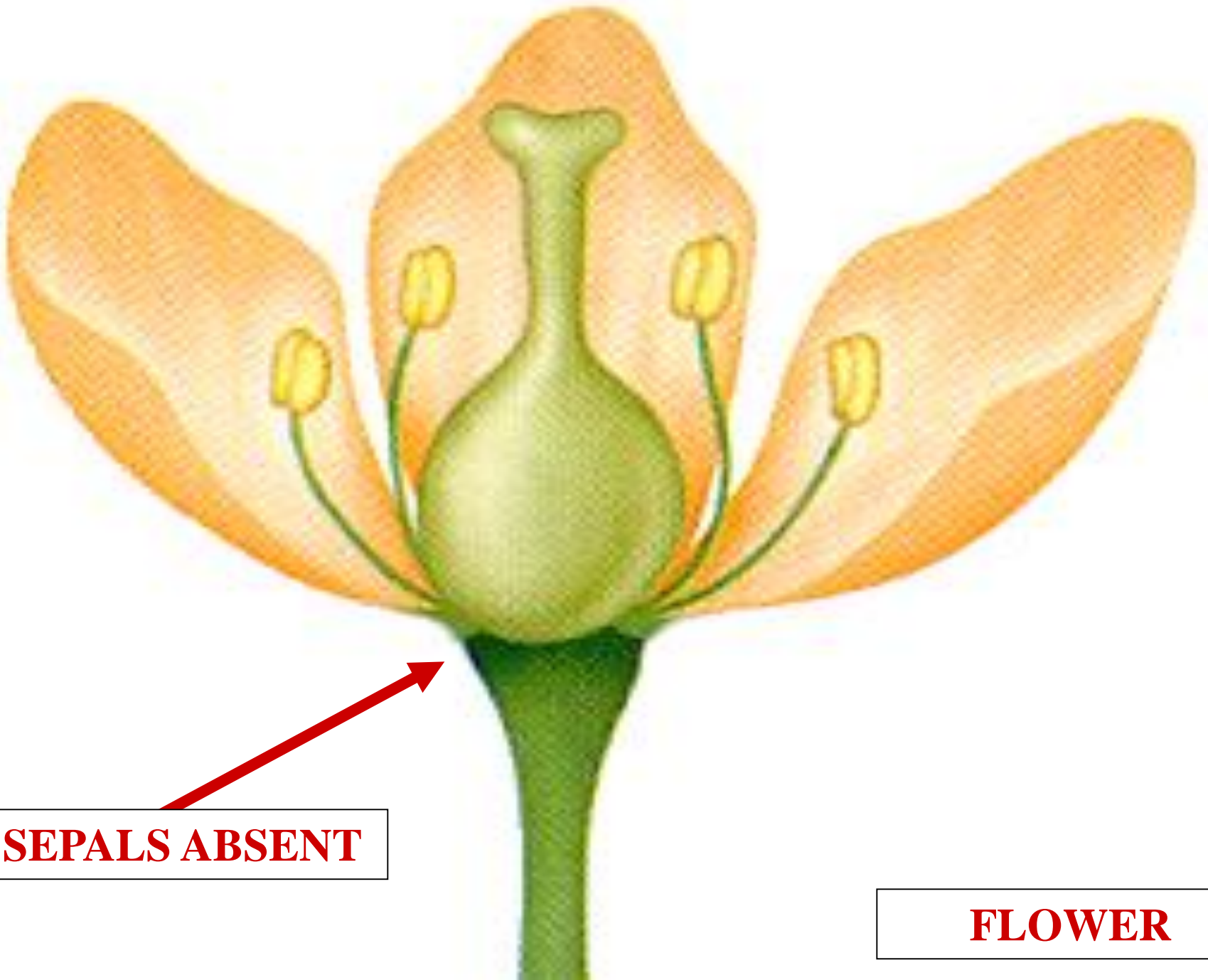
**TEPALS**



**ASEPALOUS  
FLOWER  
VS  
APETALOUS  
FLOWER**

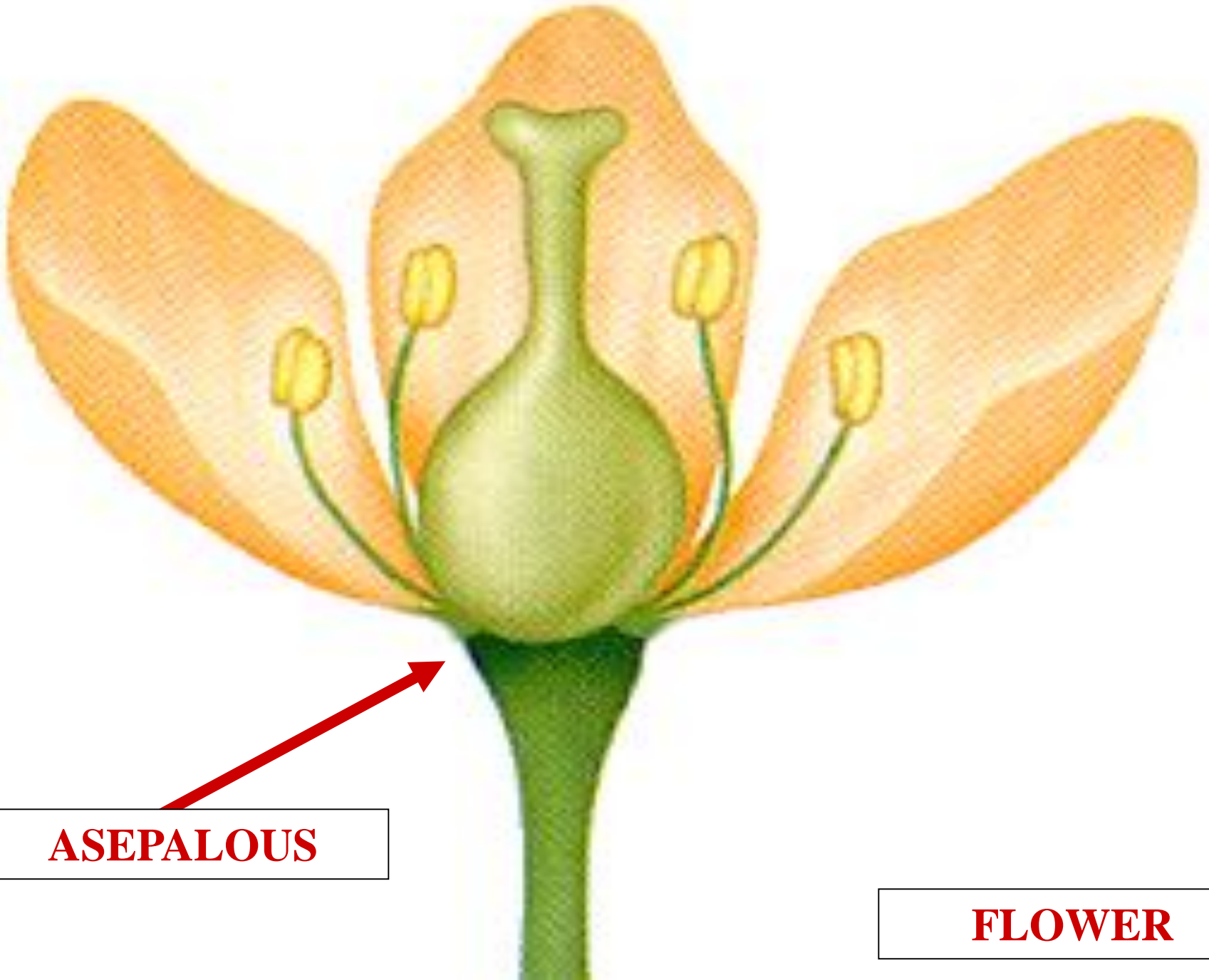


# **ASEPALOUS FLOWER**



**SEPALS ABSENT**

**FLOWER**



**ASEPALOUS**

**FLOWER**



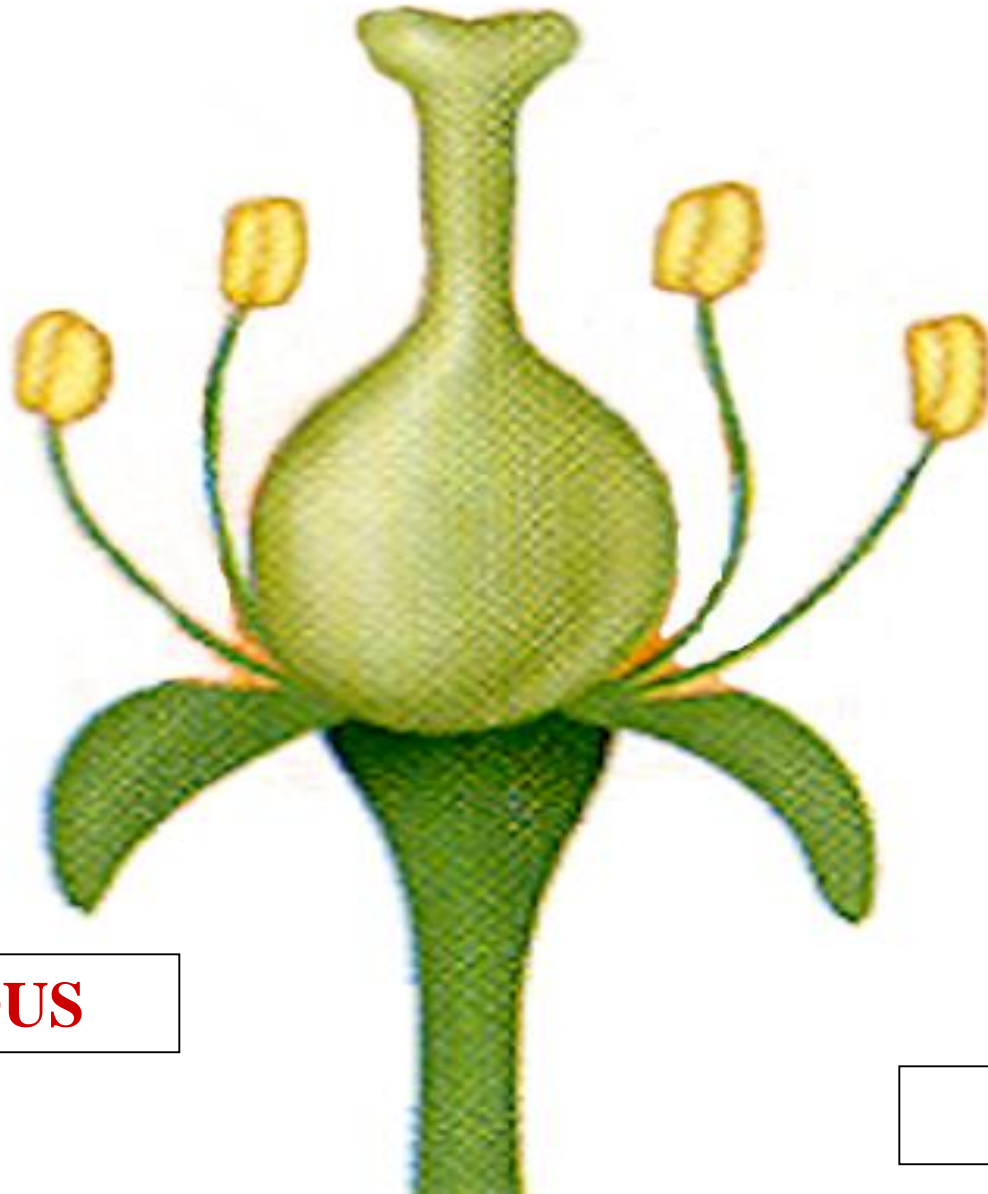
# **APETALOUS FLOWER**





**PETALS ABSENT**

**FLOWER**

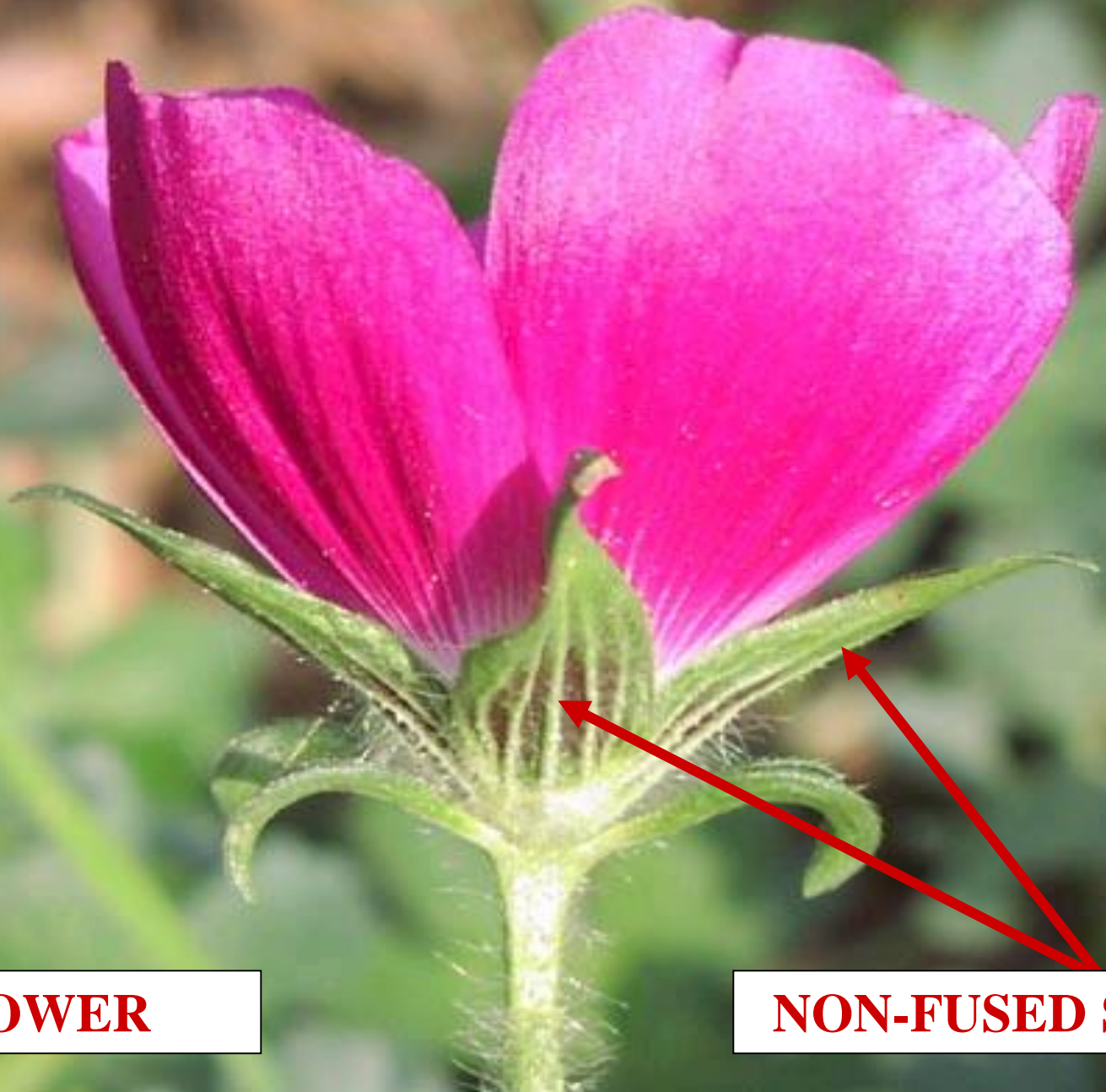


**APETALOUS**

**FLOWER**

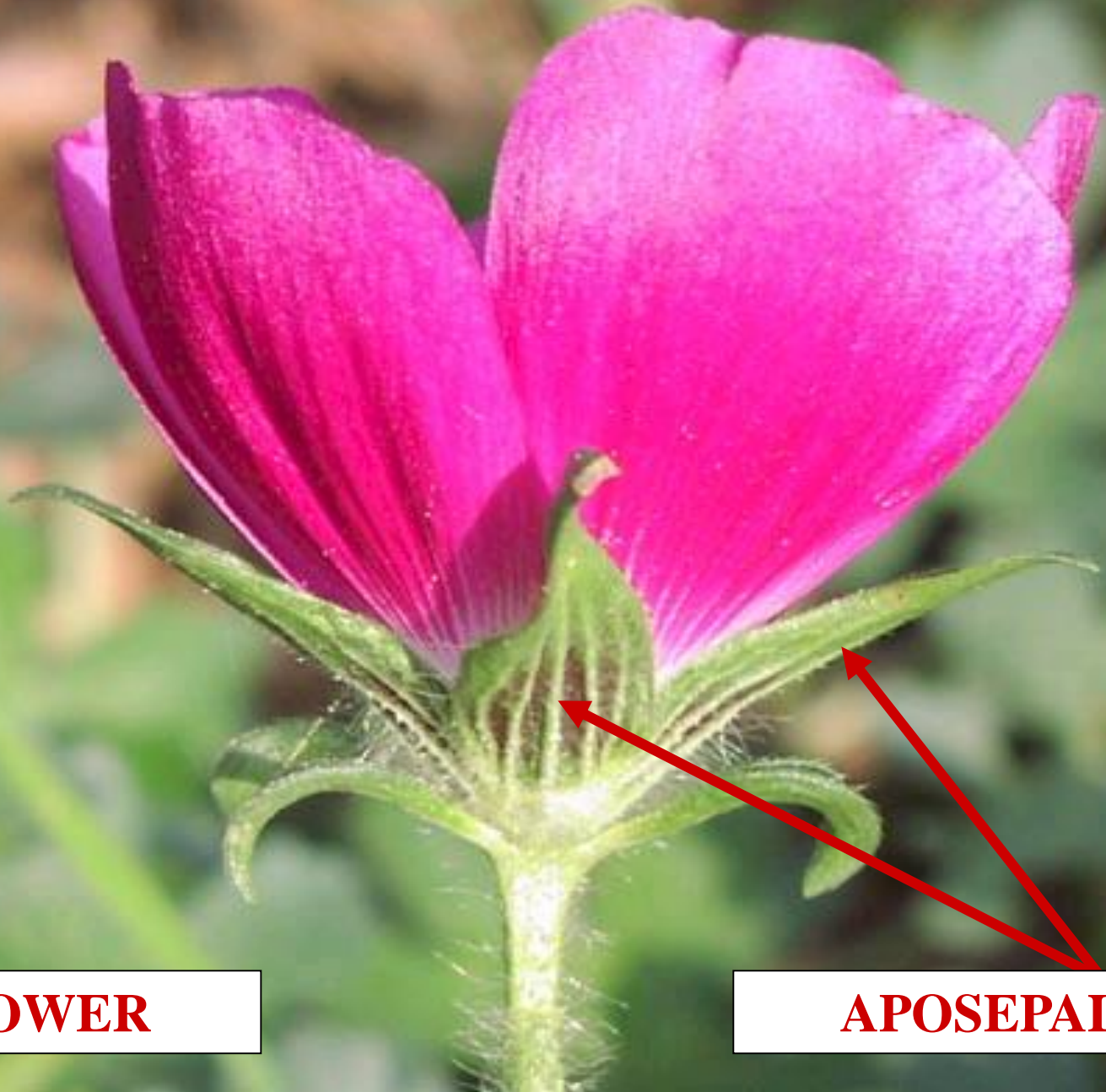
**APOSEPALOUS  
FLOWER  
VS  
APOPETALOUS  
FLOWER**

# APOSEPALOUS FLOWER



**FLOWER**

**NON-FUSED SEPALS**



**FLOWER**

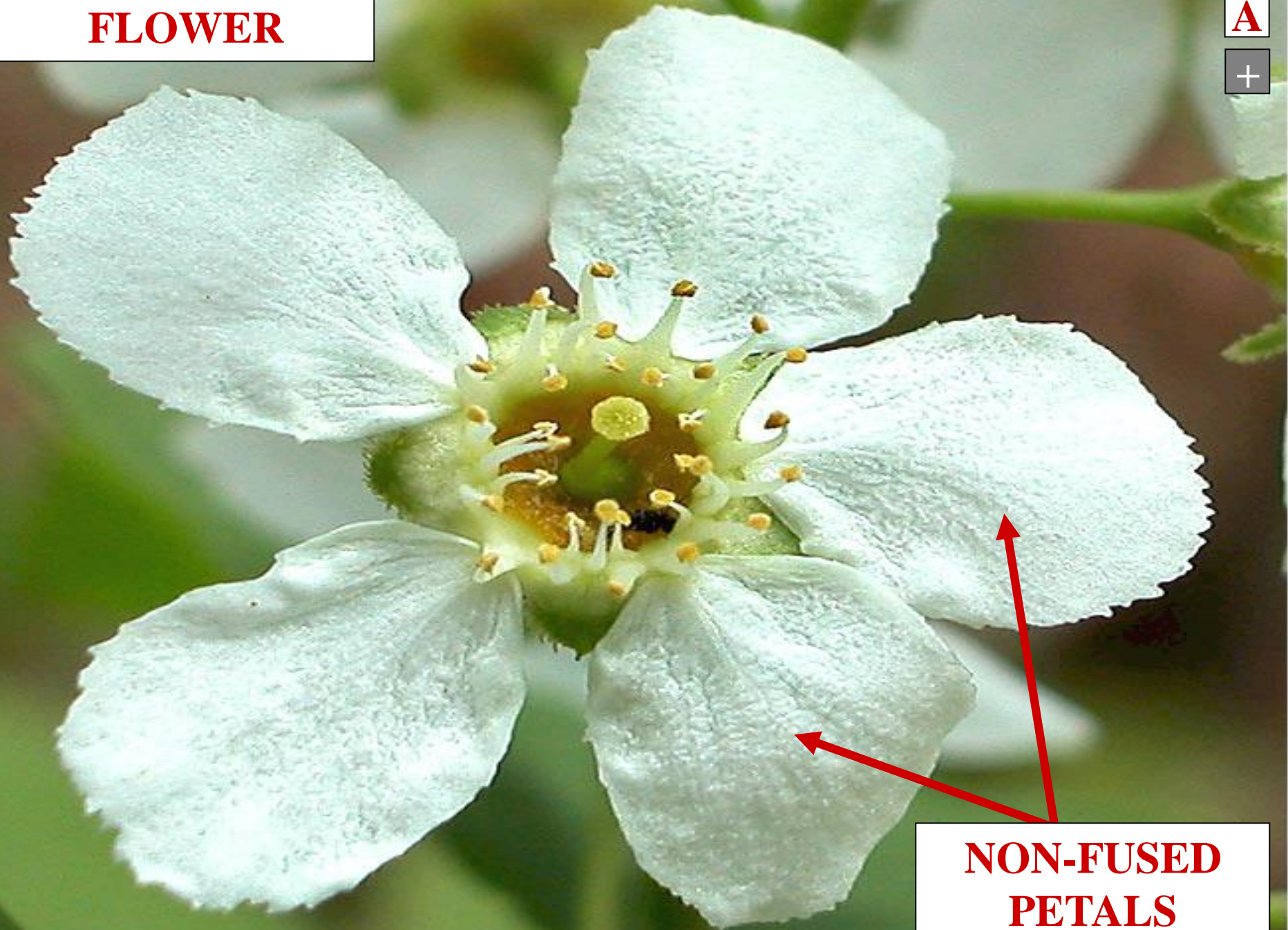
**APOSEPALOUS**

# APOPETALOUS FLOWER

**FLOWER**

**A**

+

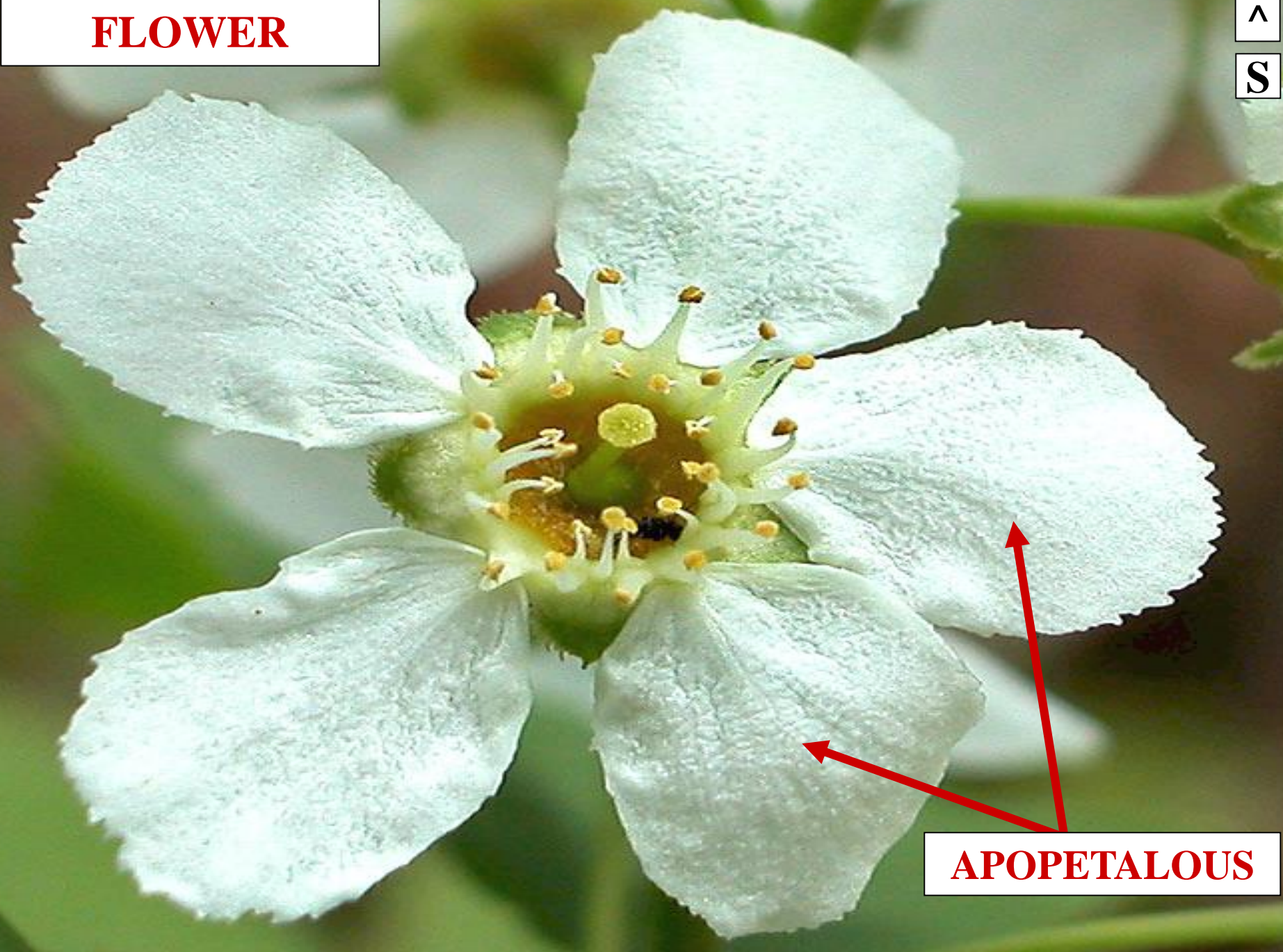


**NON-FUSED  
PETALS**



**FLOWER**

^  
S

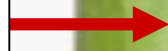


**APOPETALOUS**

**SYNSEPALOUS  
FLOWER  
VS  
SYMPETALOUS  
FLOWER**

# **SYNSEPALOUS FLOWER**

**FUSED SEPALS**



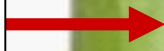
**FLOWER**

**S**

+



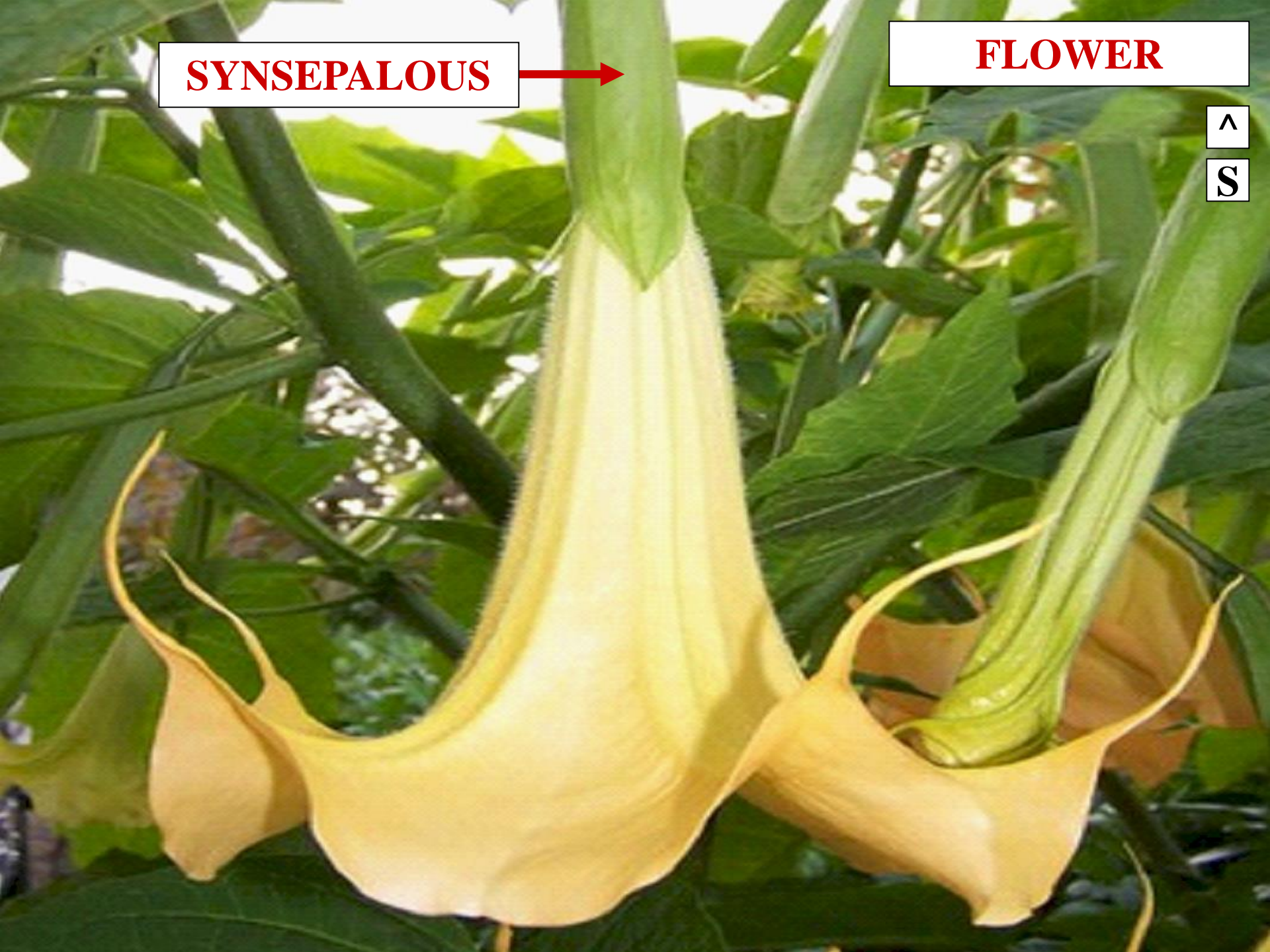
**SYNSEPALOUS**



**FLOWER**

^

S

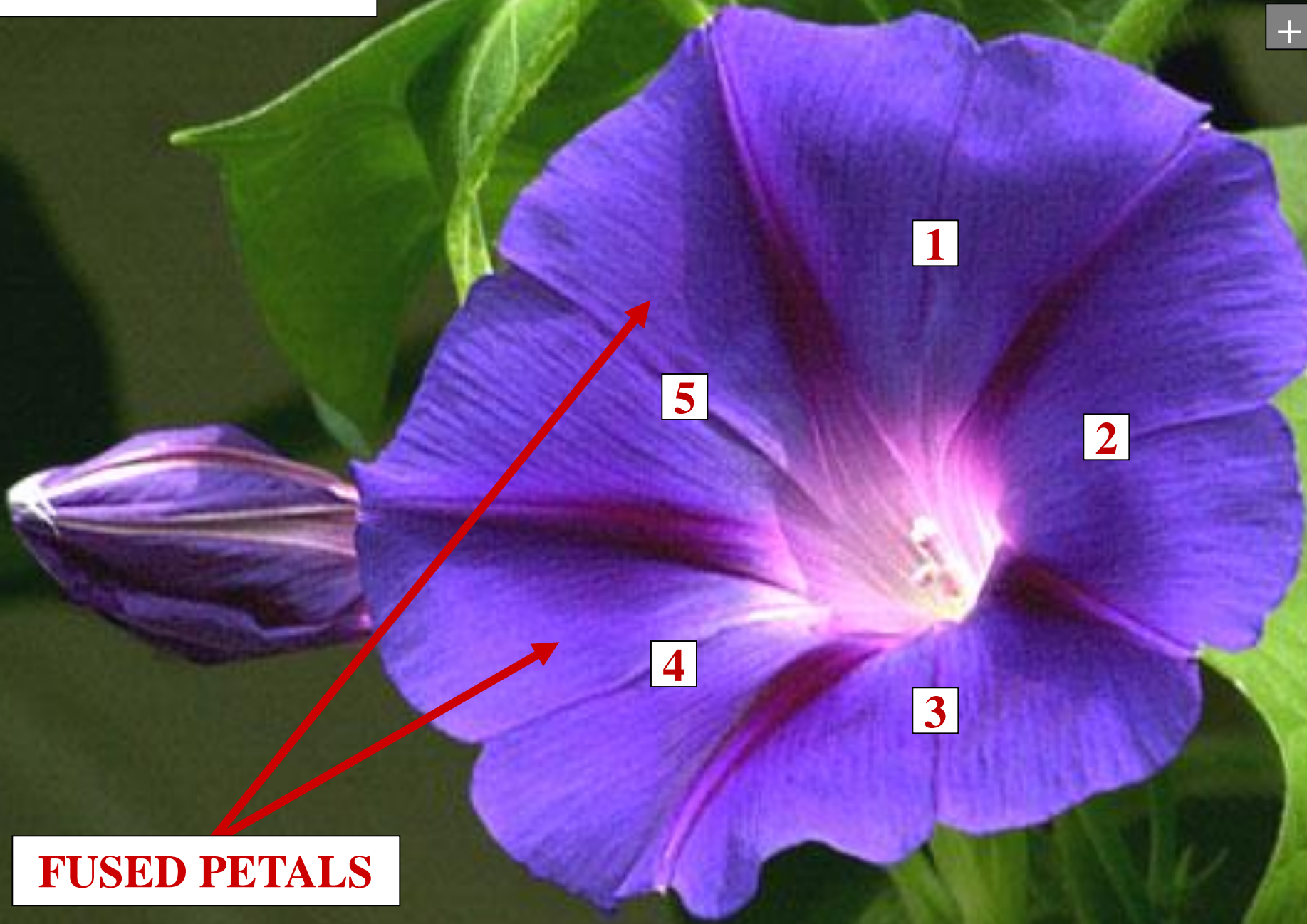


# **SYMPETALOUS FLOWER**

**FLOWER**

**S**

**+**



**1**

**5**

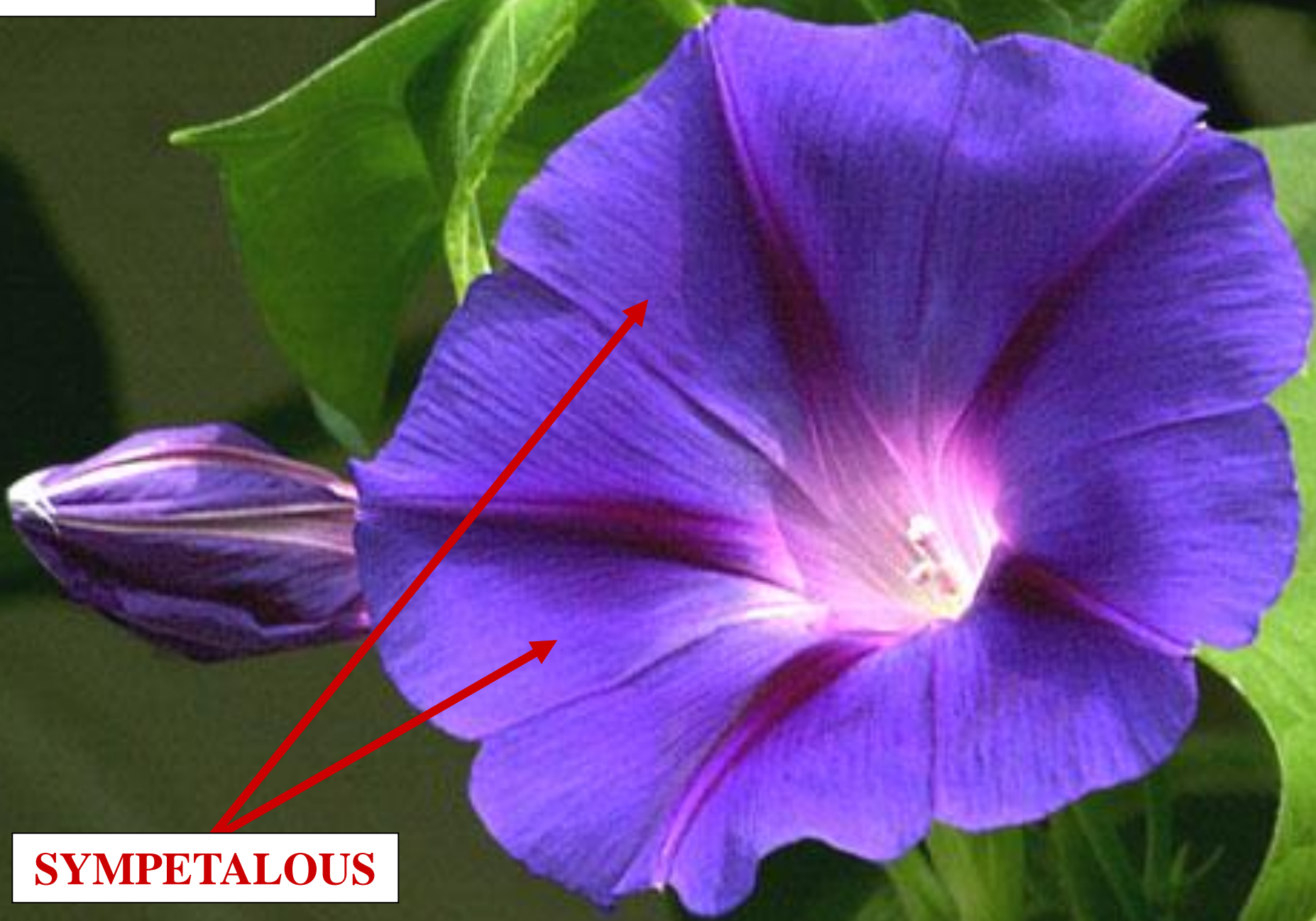
**2**

**4**

**3**

**FUSED PETALS**

**FLOWER**



**SYMPETALOUS**

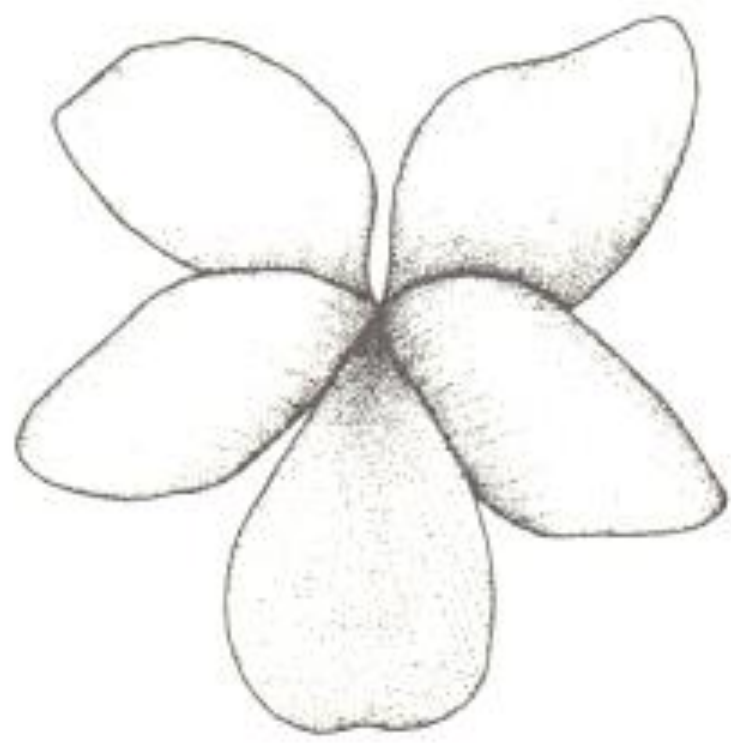
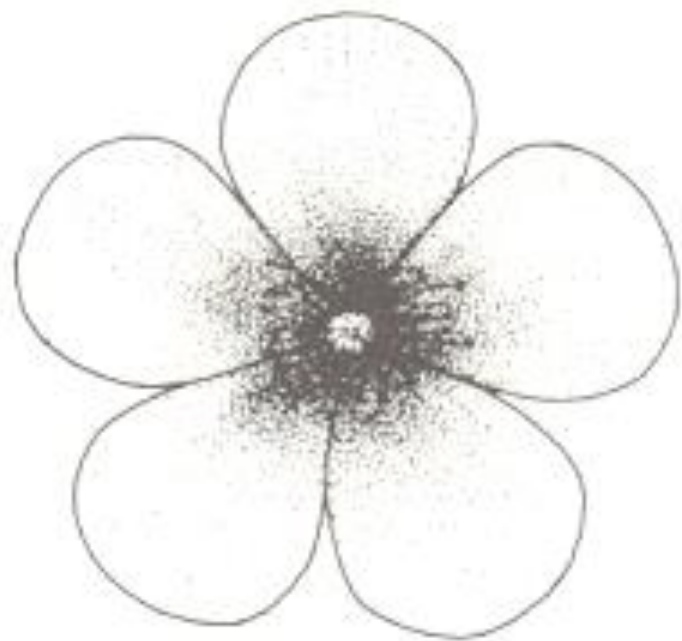


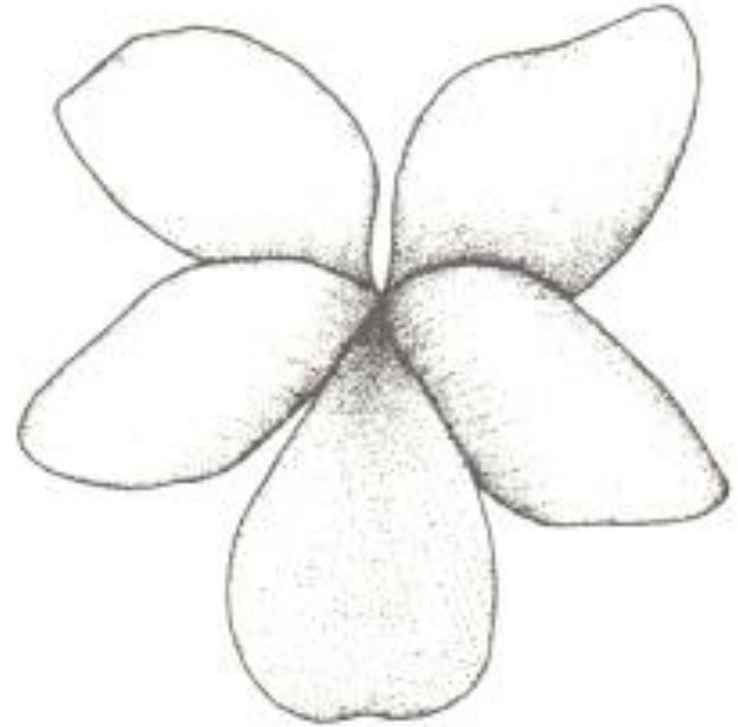
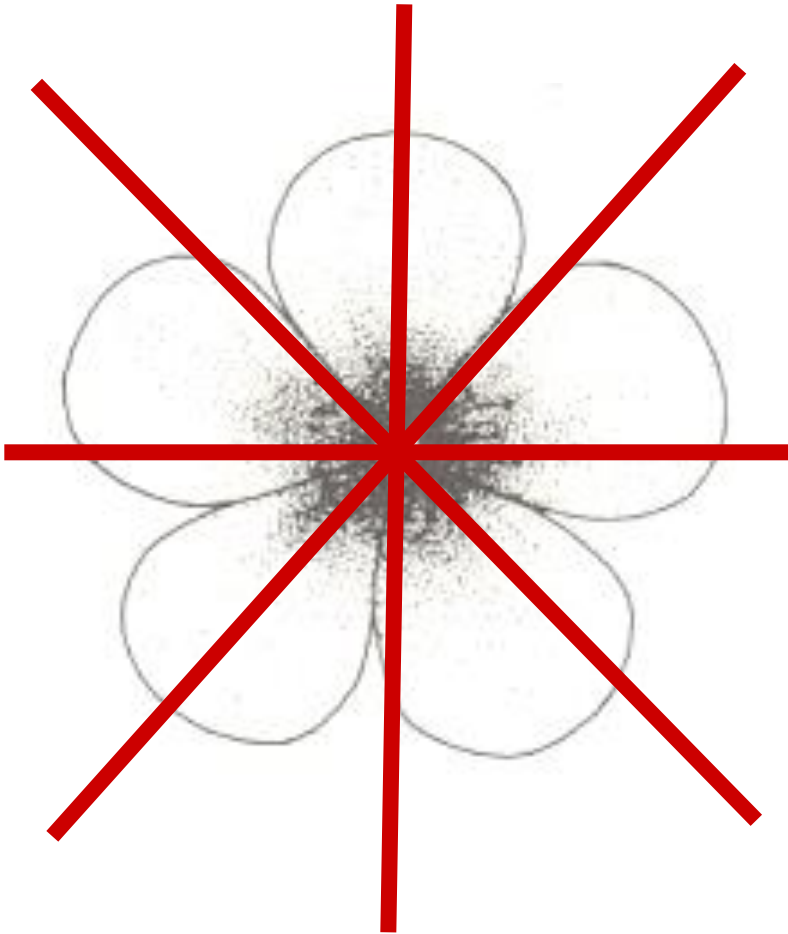
# PERIANTH SYMMETRY

**ACTINOMORPHIC  
FLOWER  
VS  
ZYGOMORPHIC  
FLOWER**



# ACTINOMORPHIC FLOWER

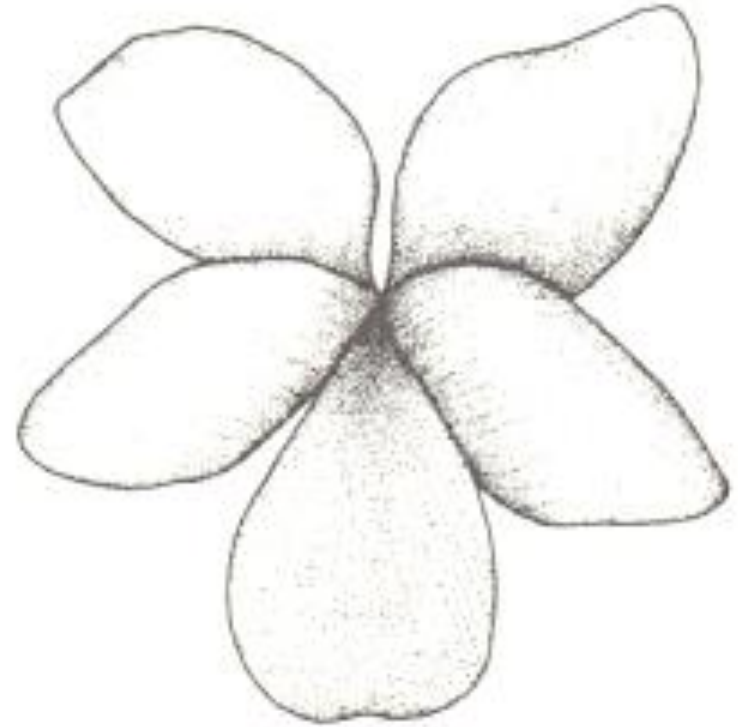
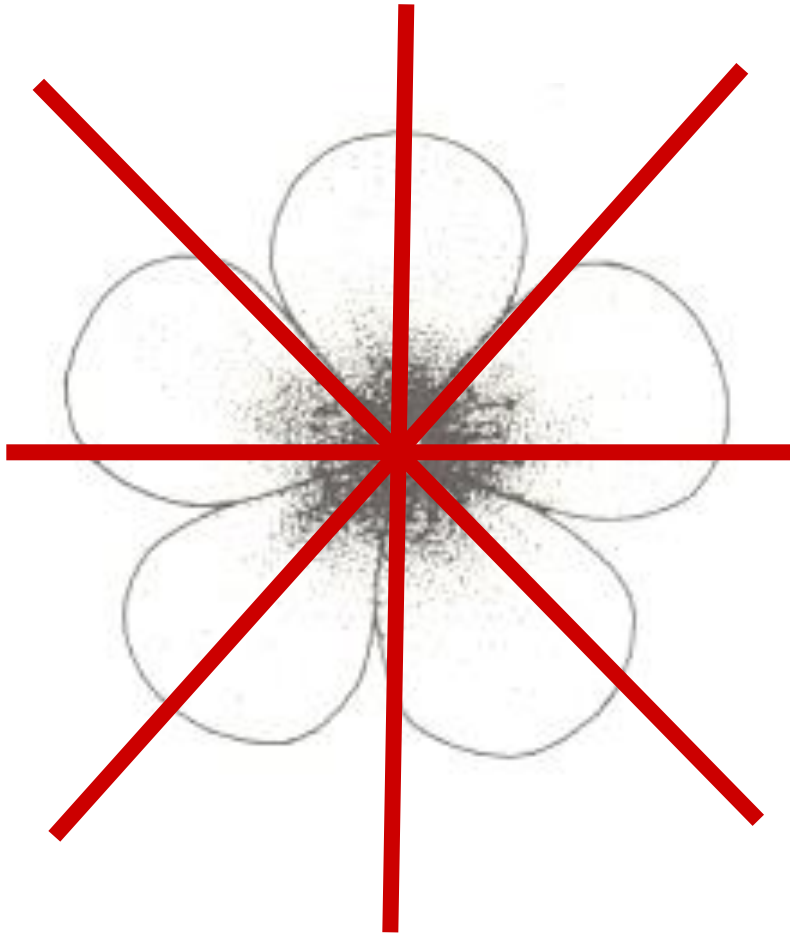




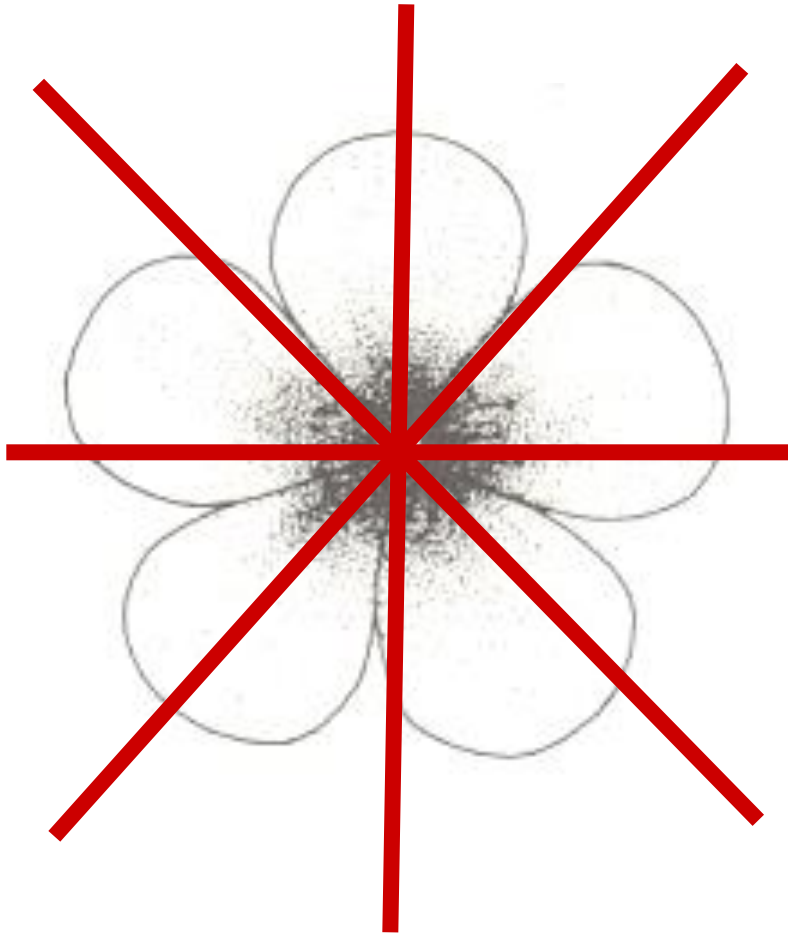
**ACTINOMORPHIC  
FLOWER**



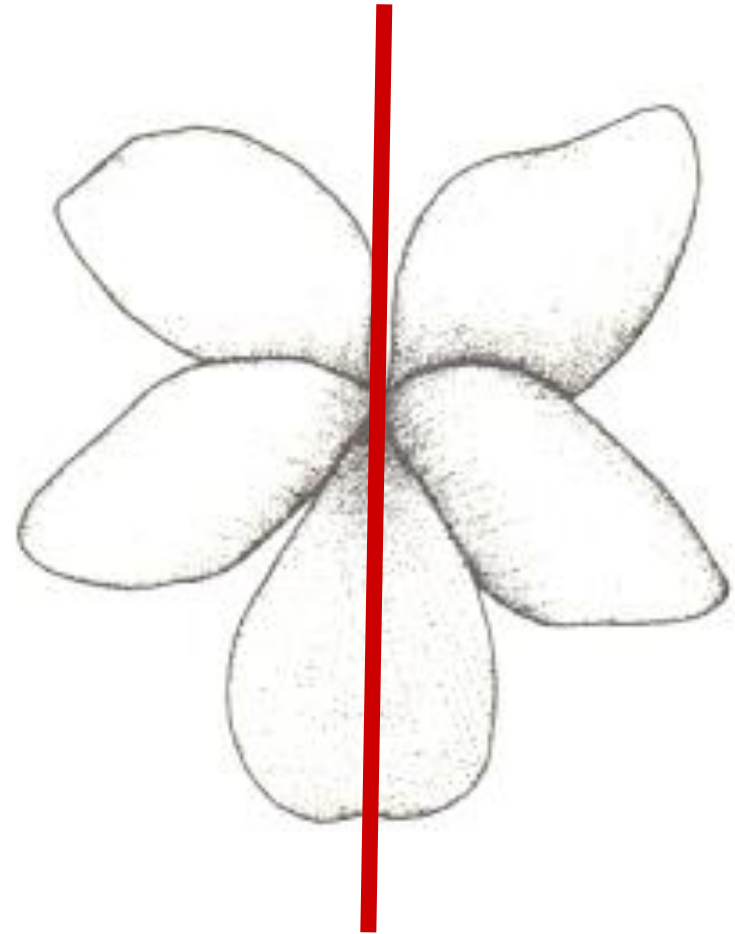
# ZYGOMORPHIC FLOWER



**ACTINOMORPHIC  
FLOWER**



**ACTINOMORPHIC  
FLOWER**



**ZYGOMORPHIC  
FLOWER**





# PERIANTH SYMMETRY APPLIED



**ZYGOMORPHIC  
FLOWER**



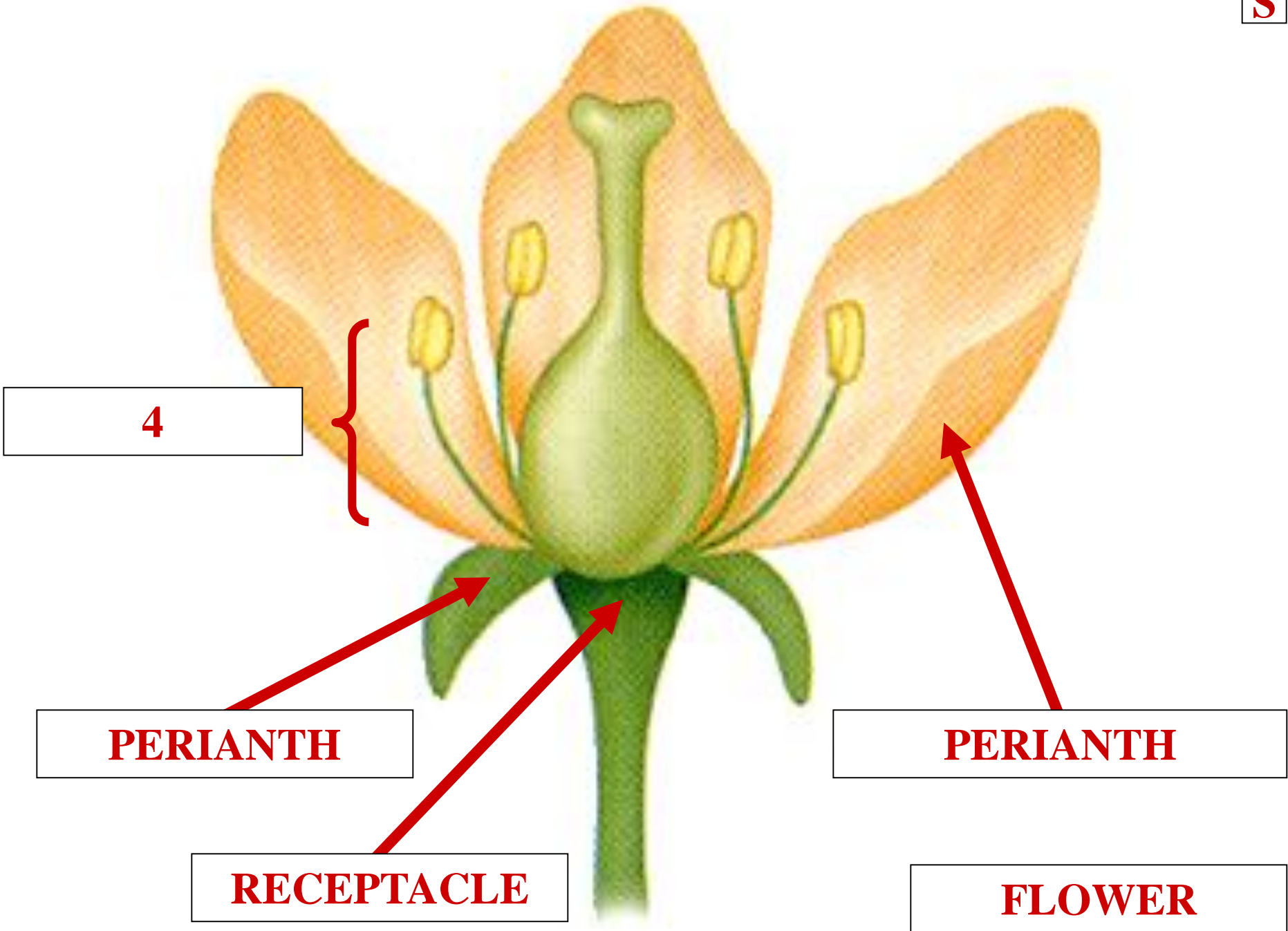


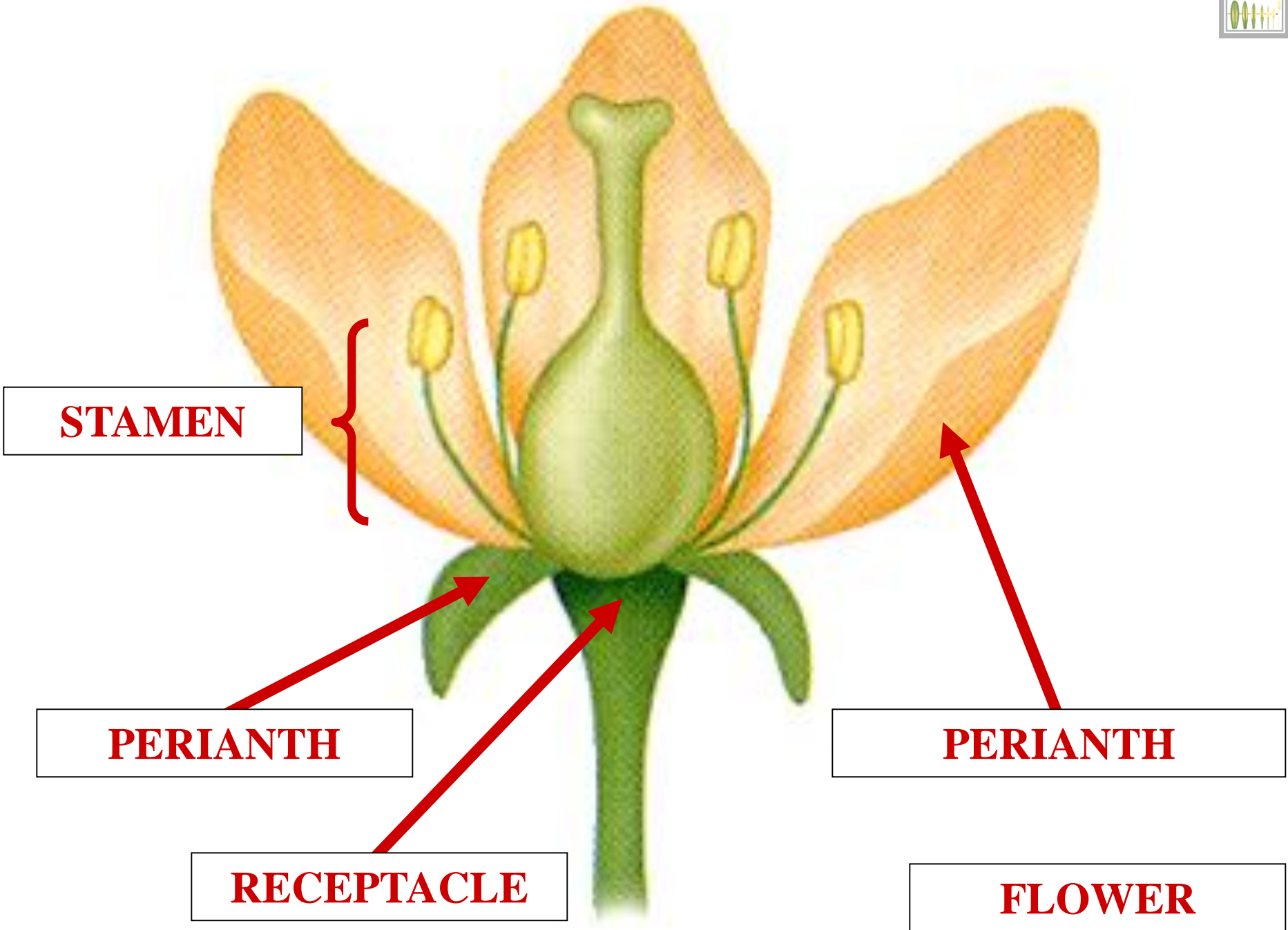
**ACTINOMORPHIC  
FLOWER**





# “MALE” FLOWER TERMS



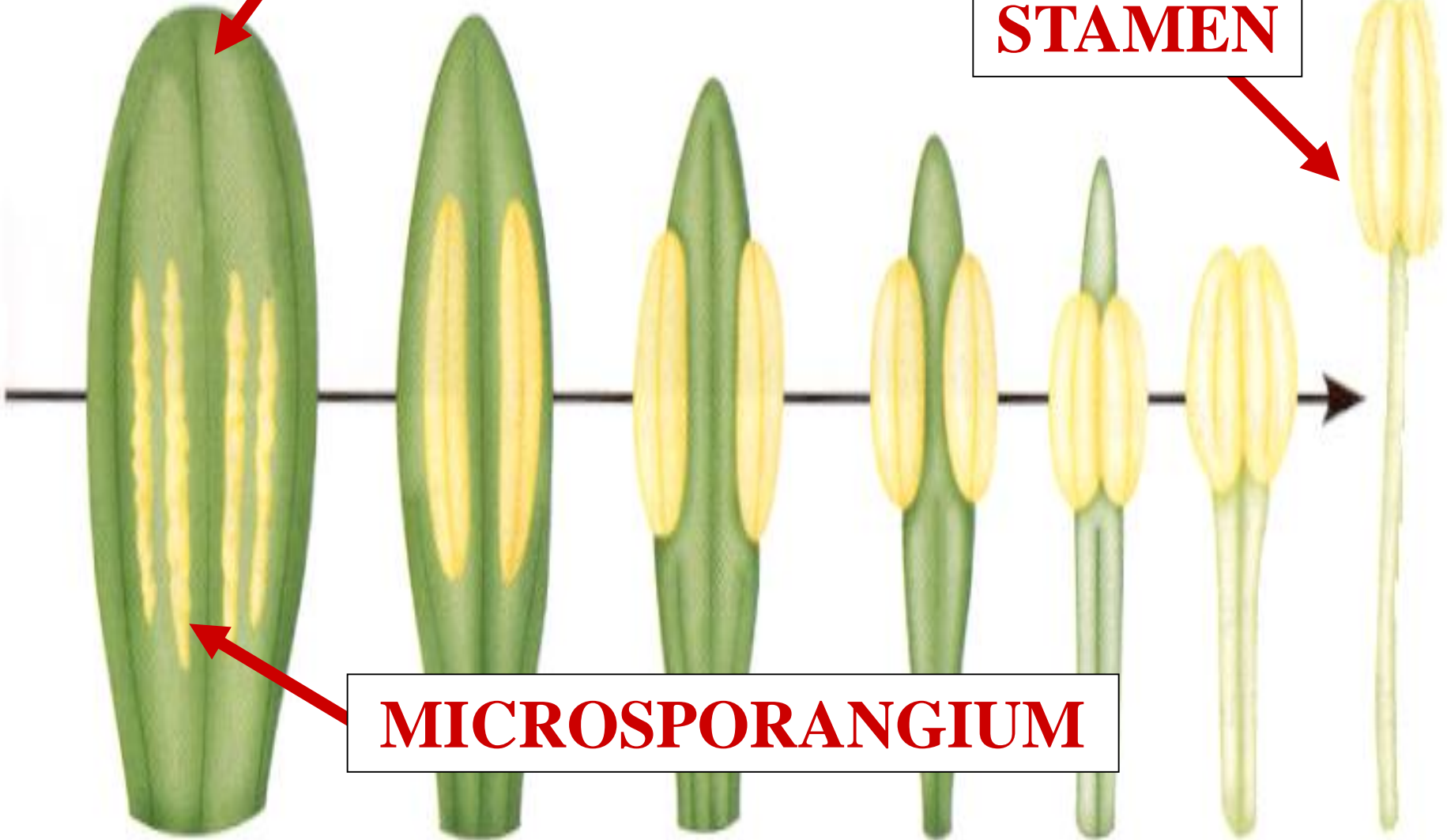




**LEAF**

**STAMEN**

**MICROSPORANGIUM**

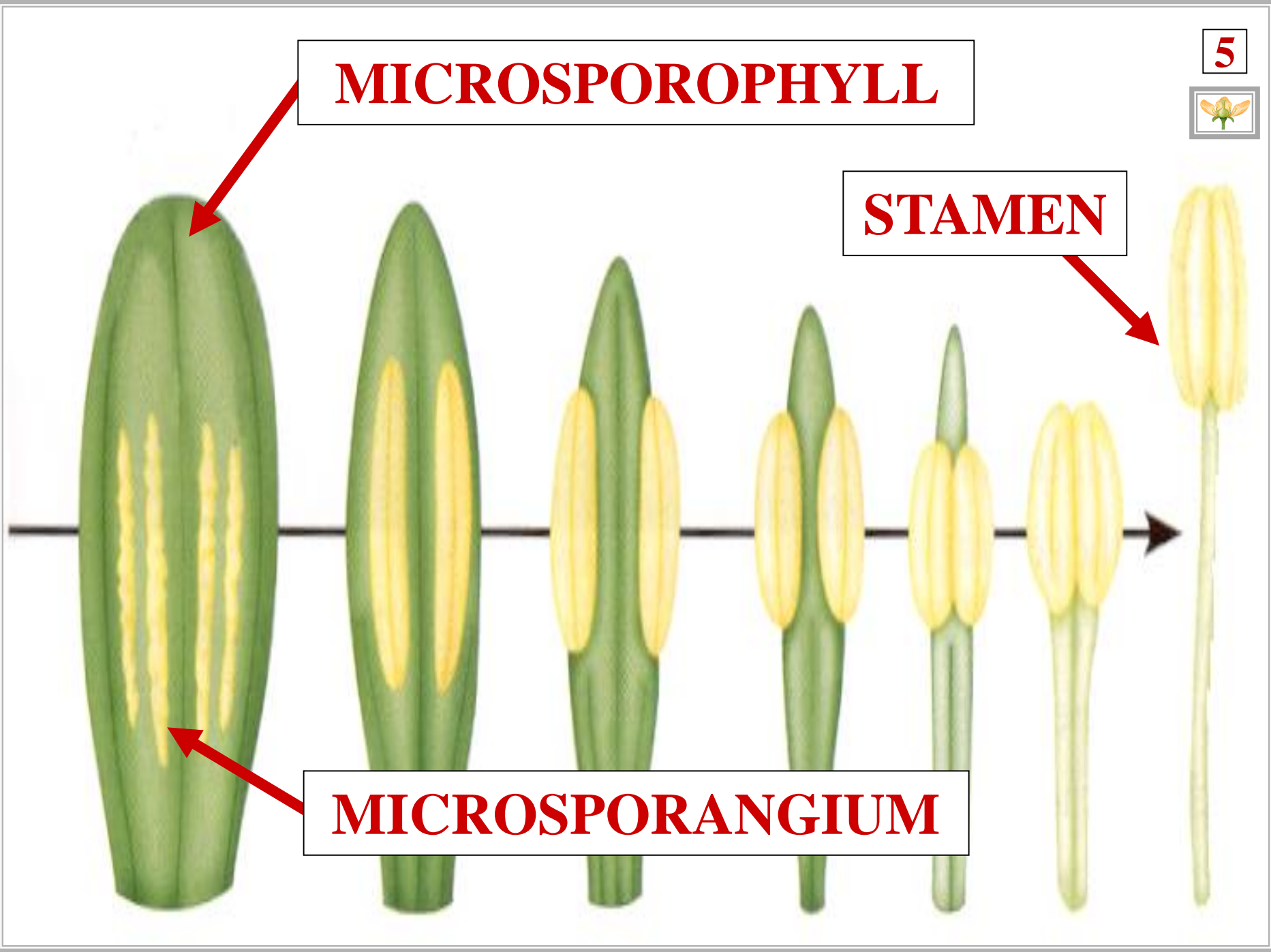


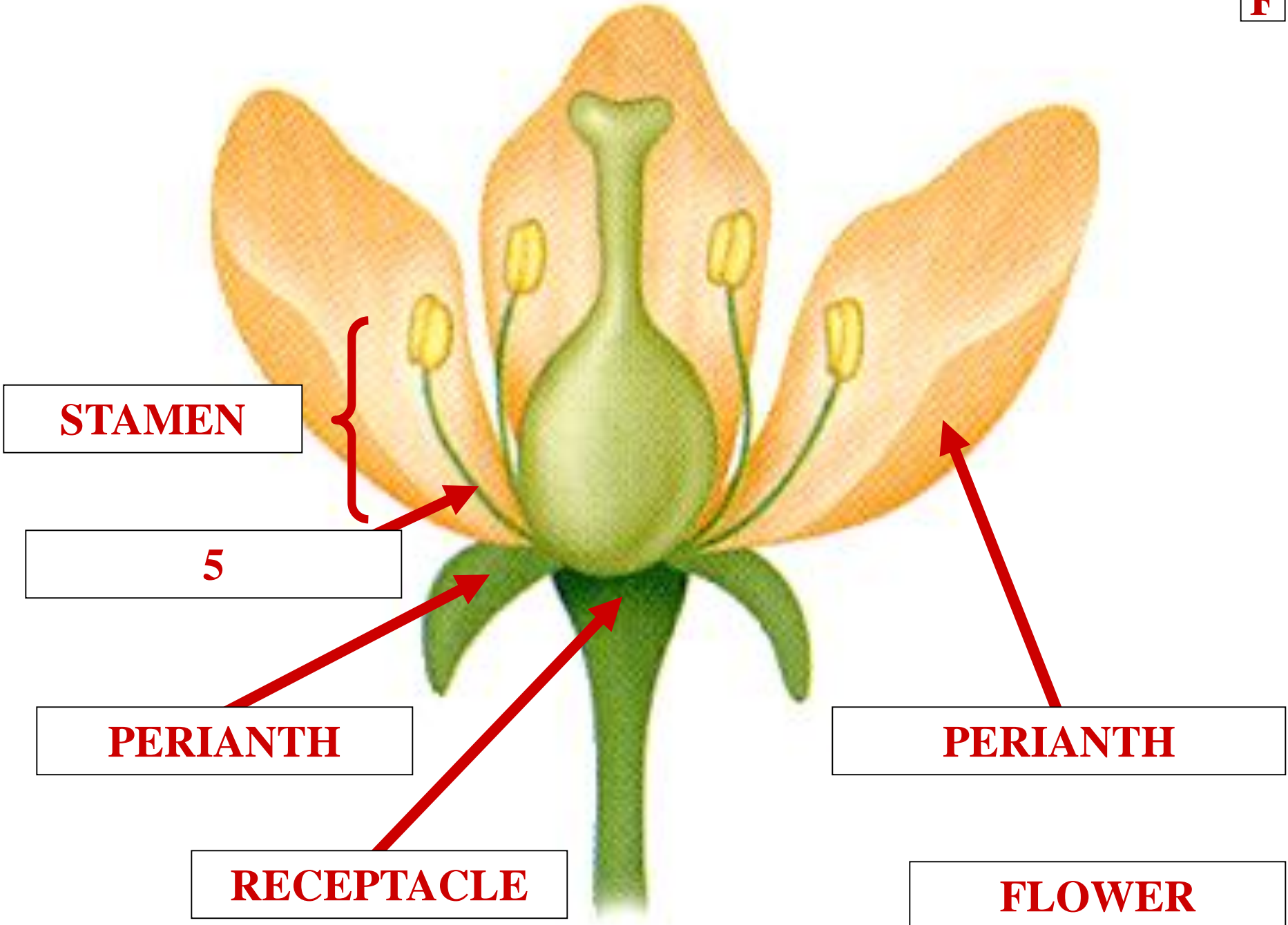


**MICROSPOROPHYLL**

**STAMEN**

**MICROSPORANGIUM**





**STAMEN**

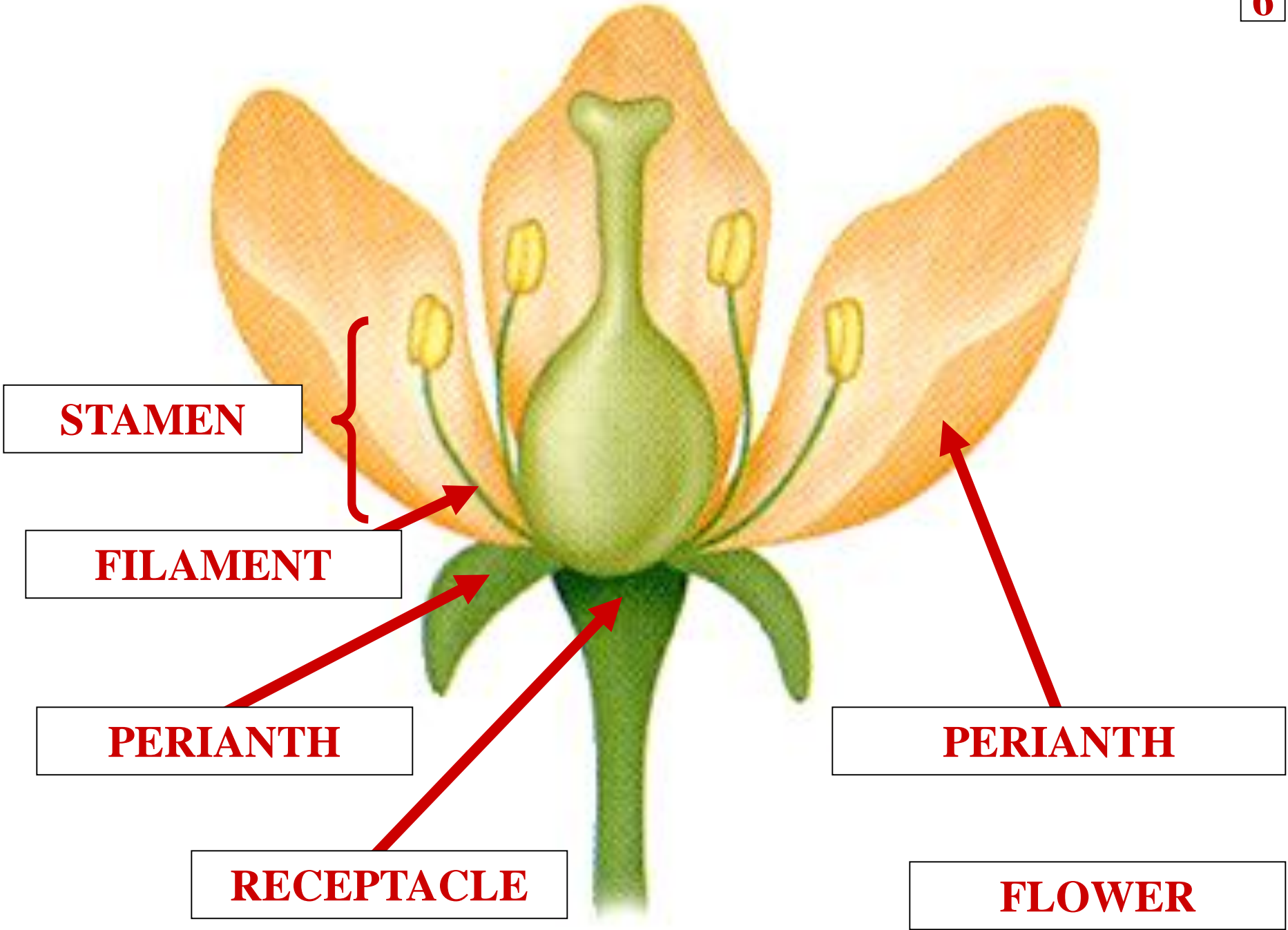
**5**

**PERIANTH**

**RECEPTACLE**

**PERIANTH**

**FLOWER**



**STAMEN**

**FILAMENT**

**PERIANTH**

**RECEPTACLE**

**PERIANTH**

**FLOWER**

6

STAMEN

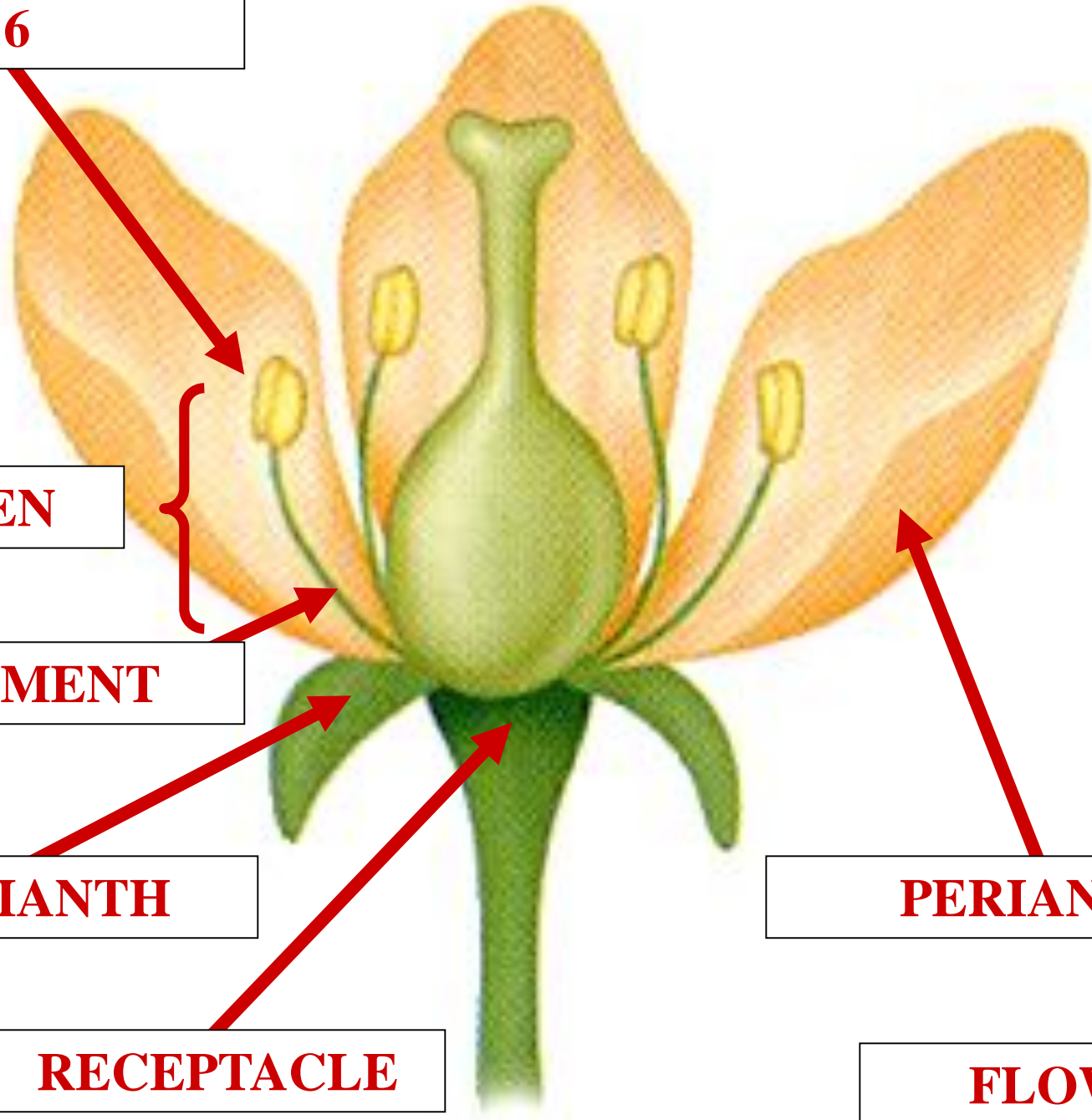
FILAMENT

PERIANTH

RECEPTACLE

PERIANTH

FLOWER



**ANTHER**

**STAMEN**

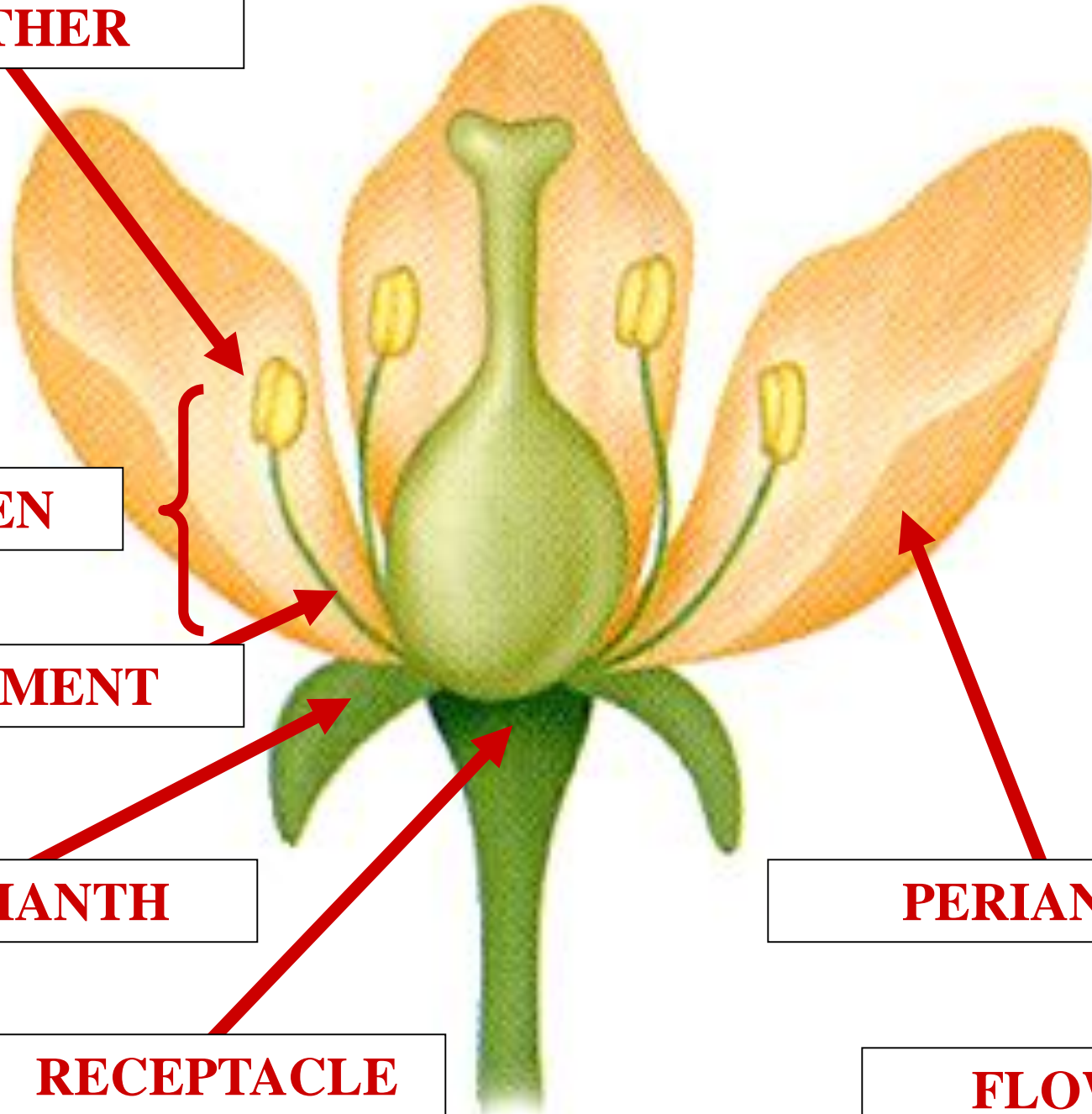
**FILAMENT**

**PERIANTH**

**RECEPTACLE**

**PERIANTH**

**FLOWER**





**ANTHER**

**ANDROECIUM**

**STAMEN**

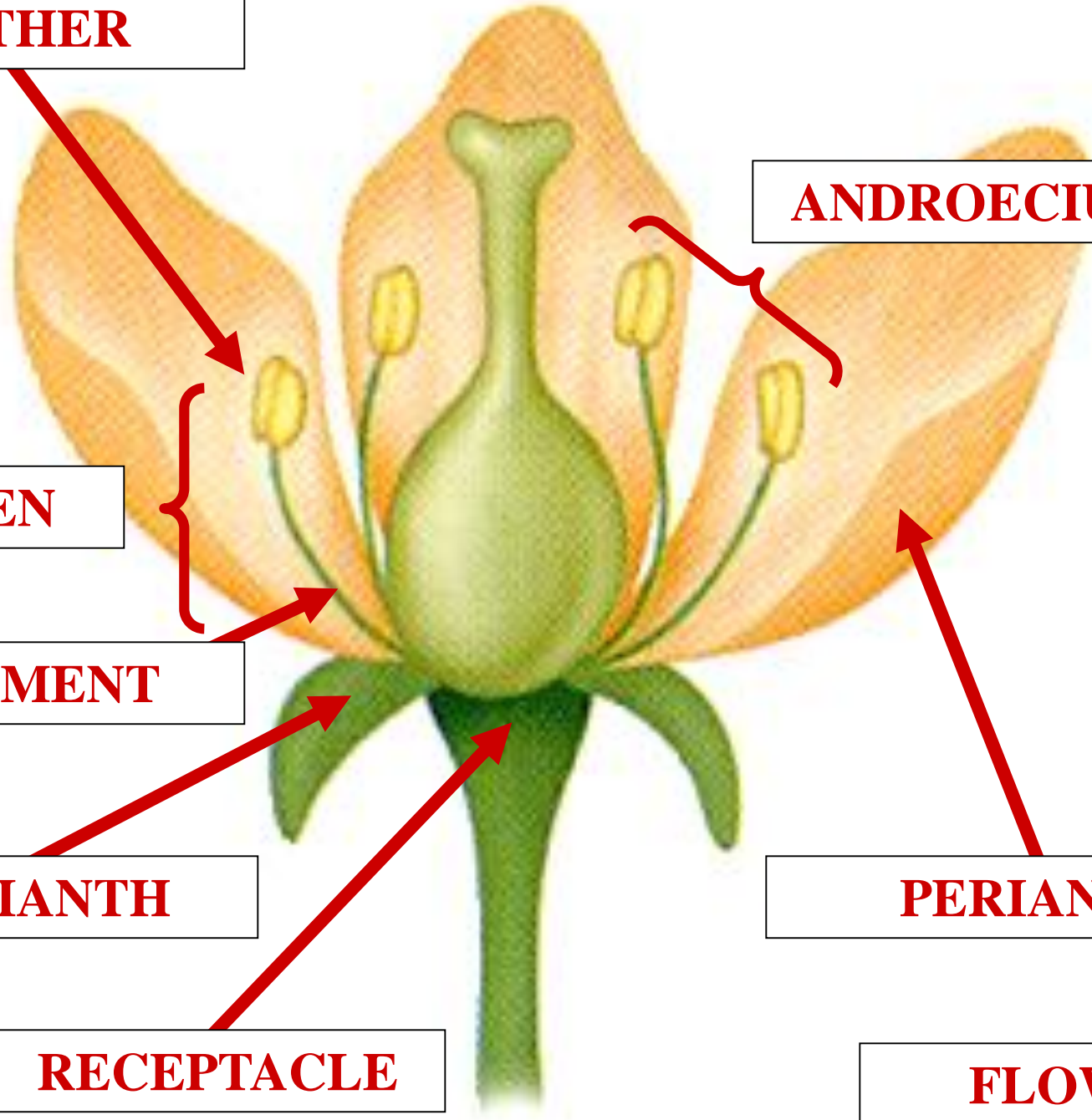
**FILAMENT**

**PERIANTH**

**RECEPTACLE**

**PERIANTH**

**FLOWER**

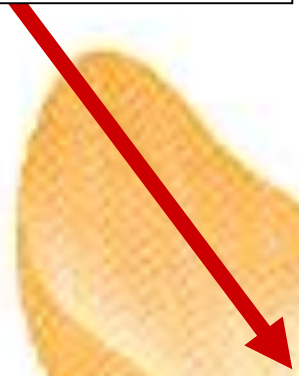




# **“FEMALE” FLOWER TERMS**



**ANTHER**



**STAMEN**



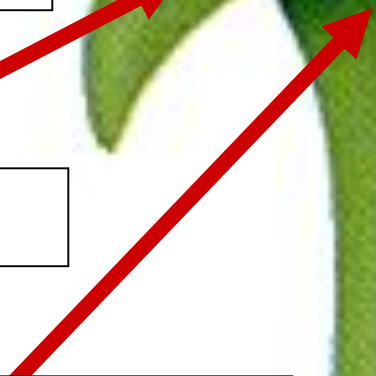
**FILAMENT**



**PERIANTH**



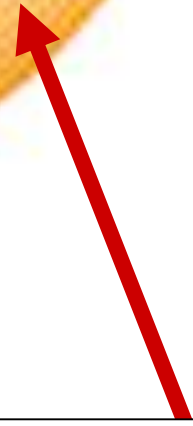
**RECEPTACLE**



7



**PERIANTH**

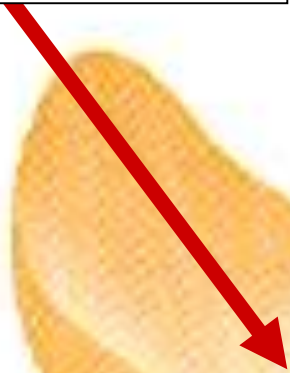


**FLOWER**





**ANTHER**



**STAMEN**



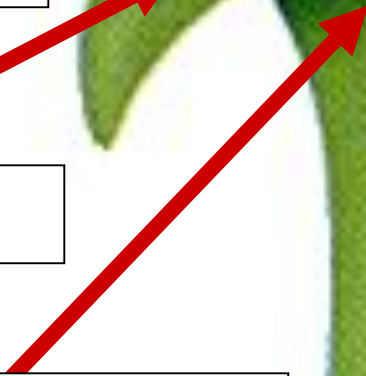
**FILAMENT**



**PERIANTH**



**RECEPTACLE**



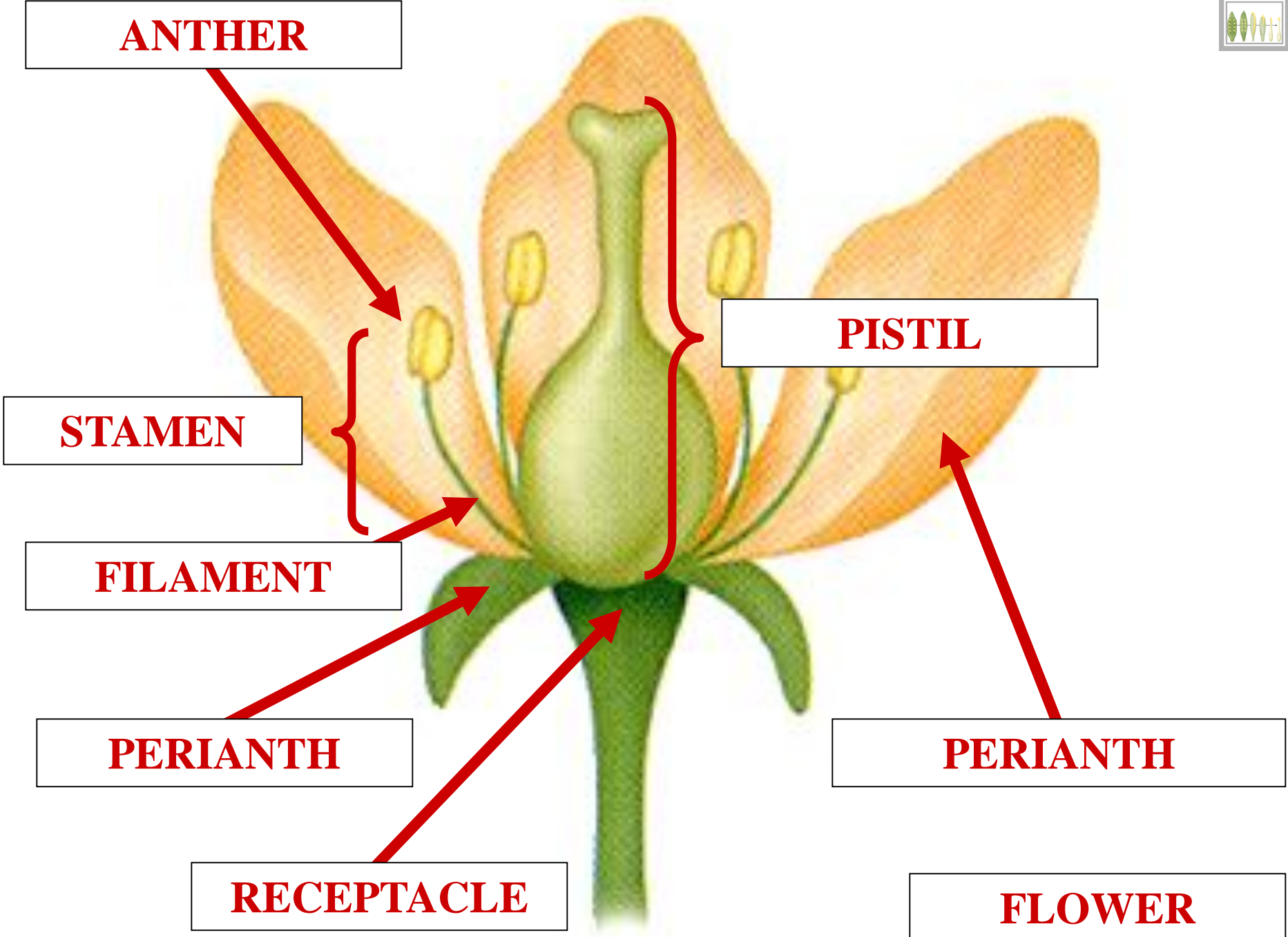
**PISTIL**



**PERIANTH**



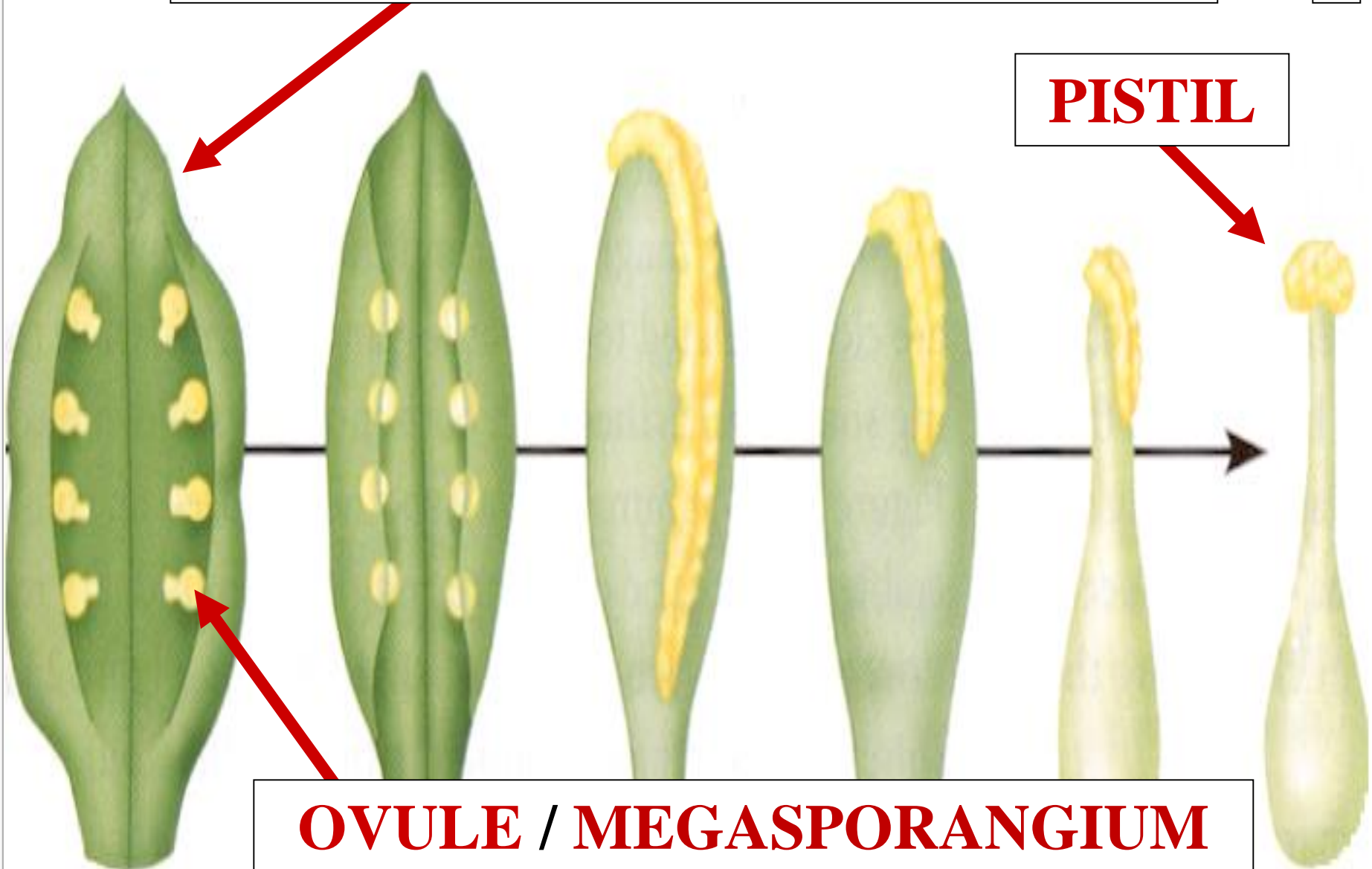
**FLOWER**



**LEAF**

**PISTIL**

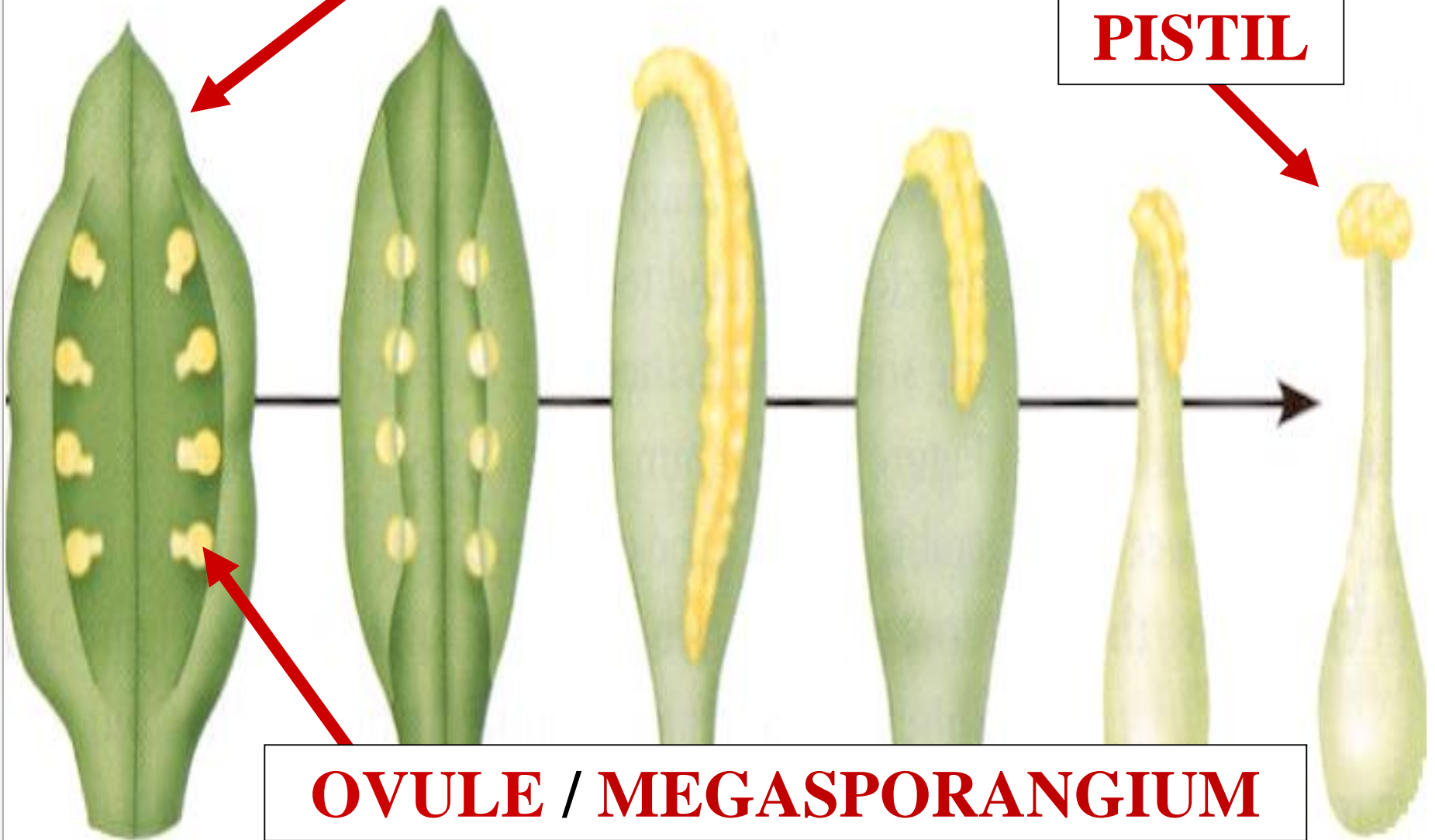
**OVULE / MEGASPORANGIUM**



**MEGASPOROPHYLL**

**PISTIL**

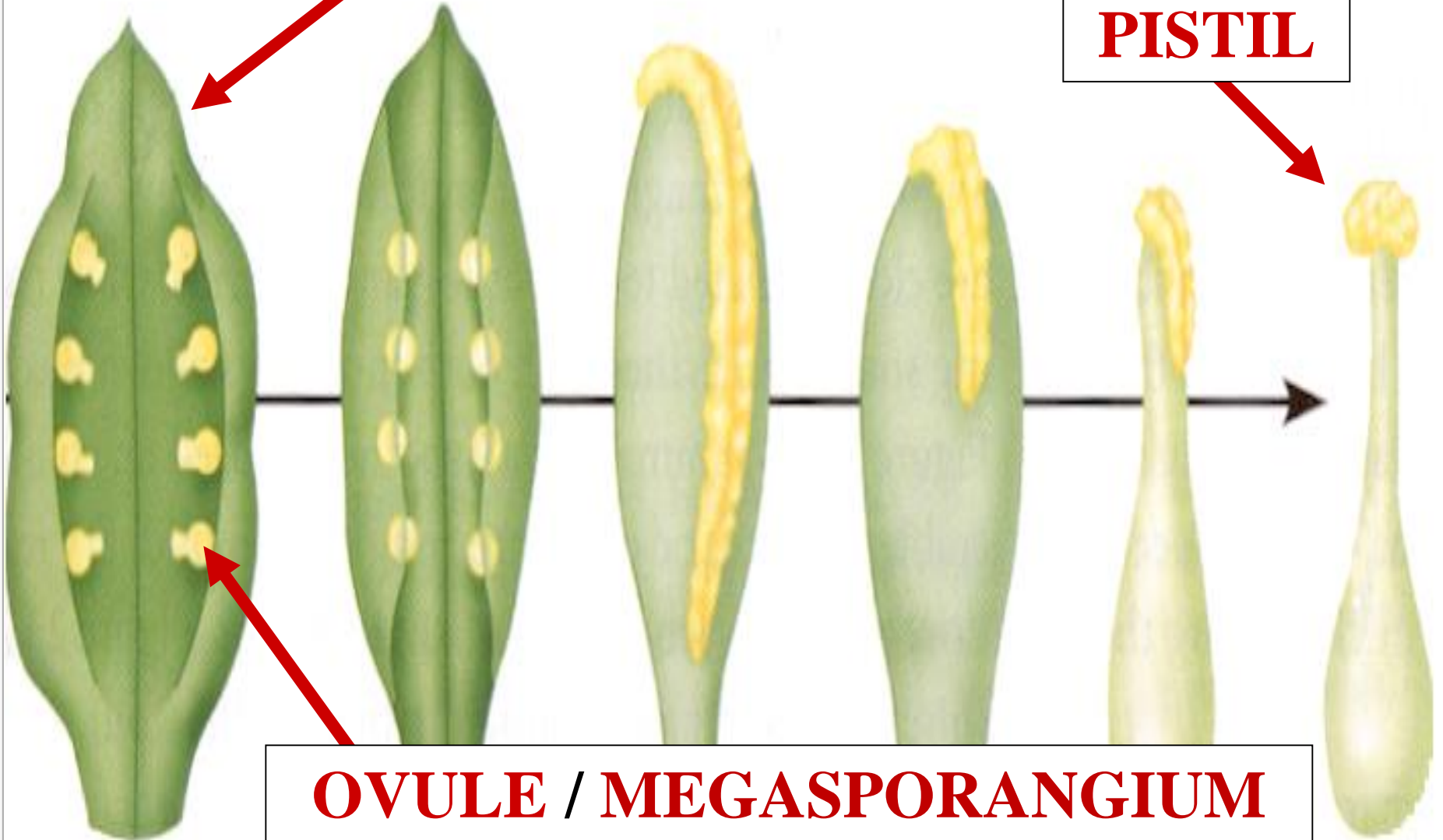
**OVULE / MEGASPORANGIUM**



**CARPEL**

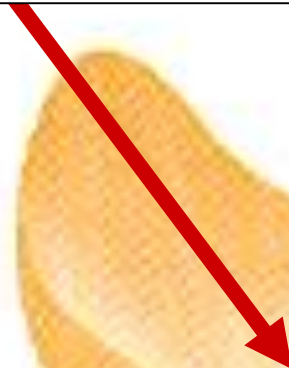


**PISTIL**



**OVULE / MEGASPORANGIUM**

**ANTHER**



**STAMEN**



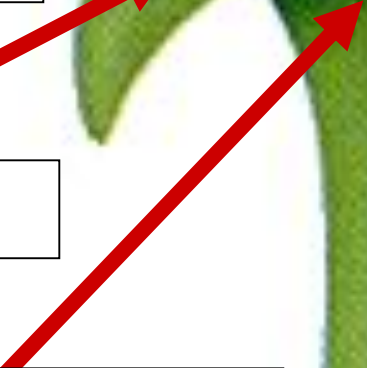
**FILAMENT**



**PERIANTH**



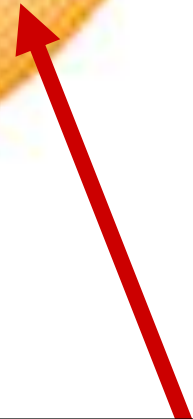
**RECEPTACLE**



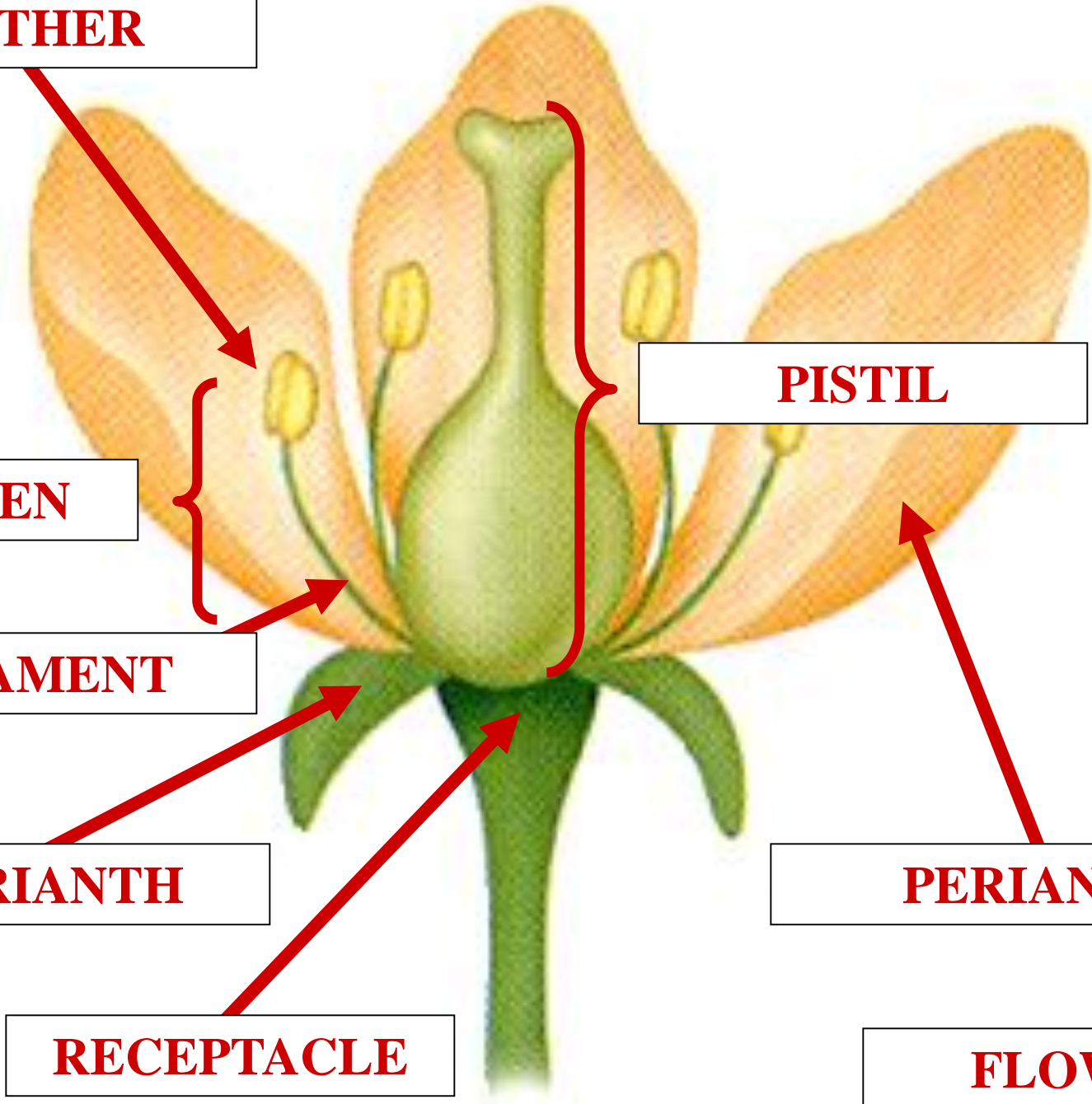
**PISTIL**



**PERIANTH**



**FLOWER**



**ANTHER**

**8**

**STAMEN**

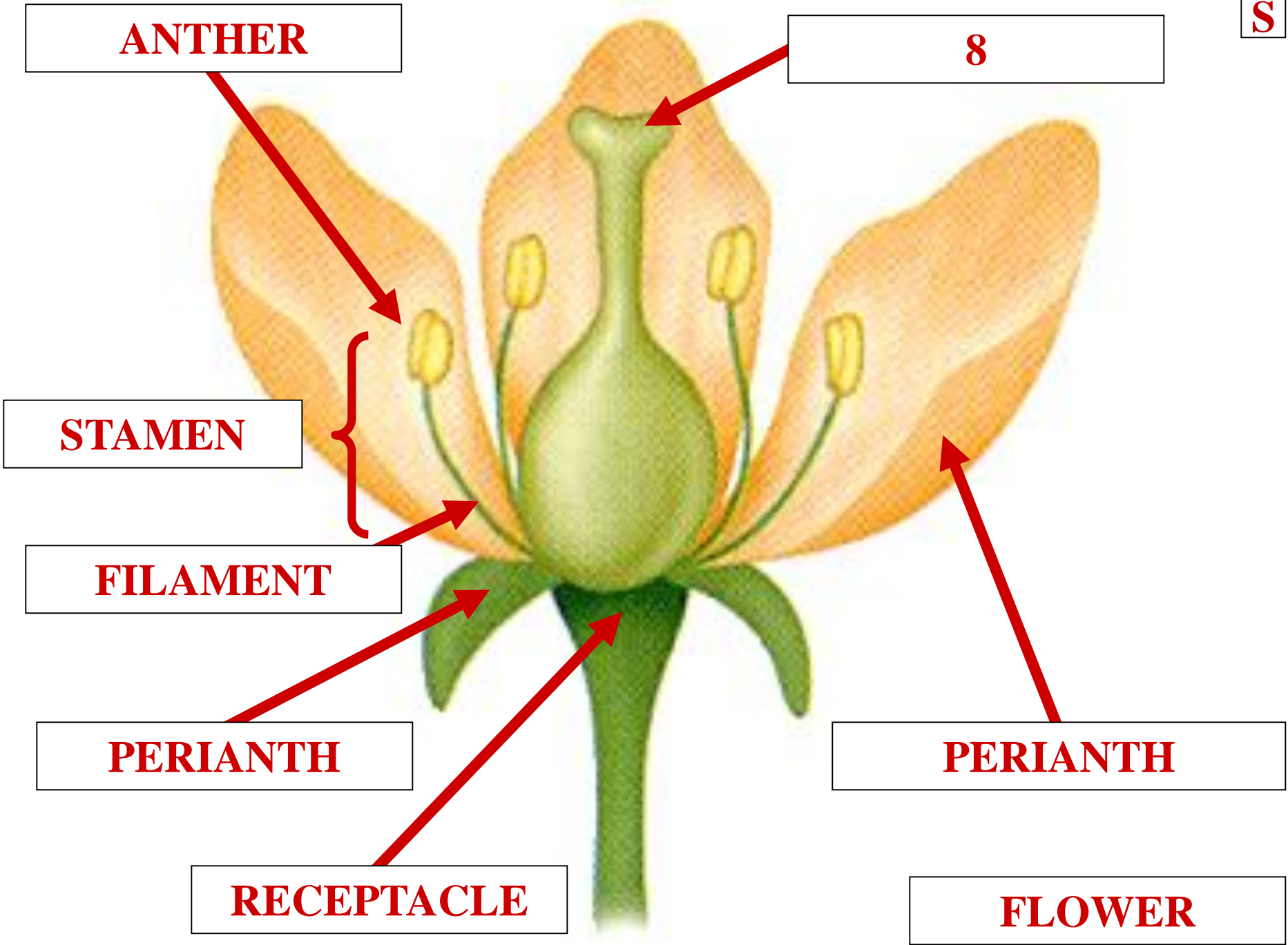
**FILAMENT**

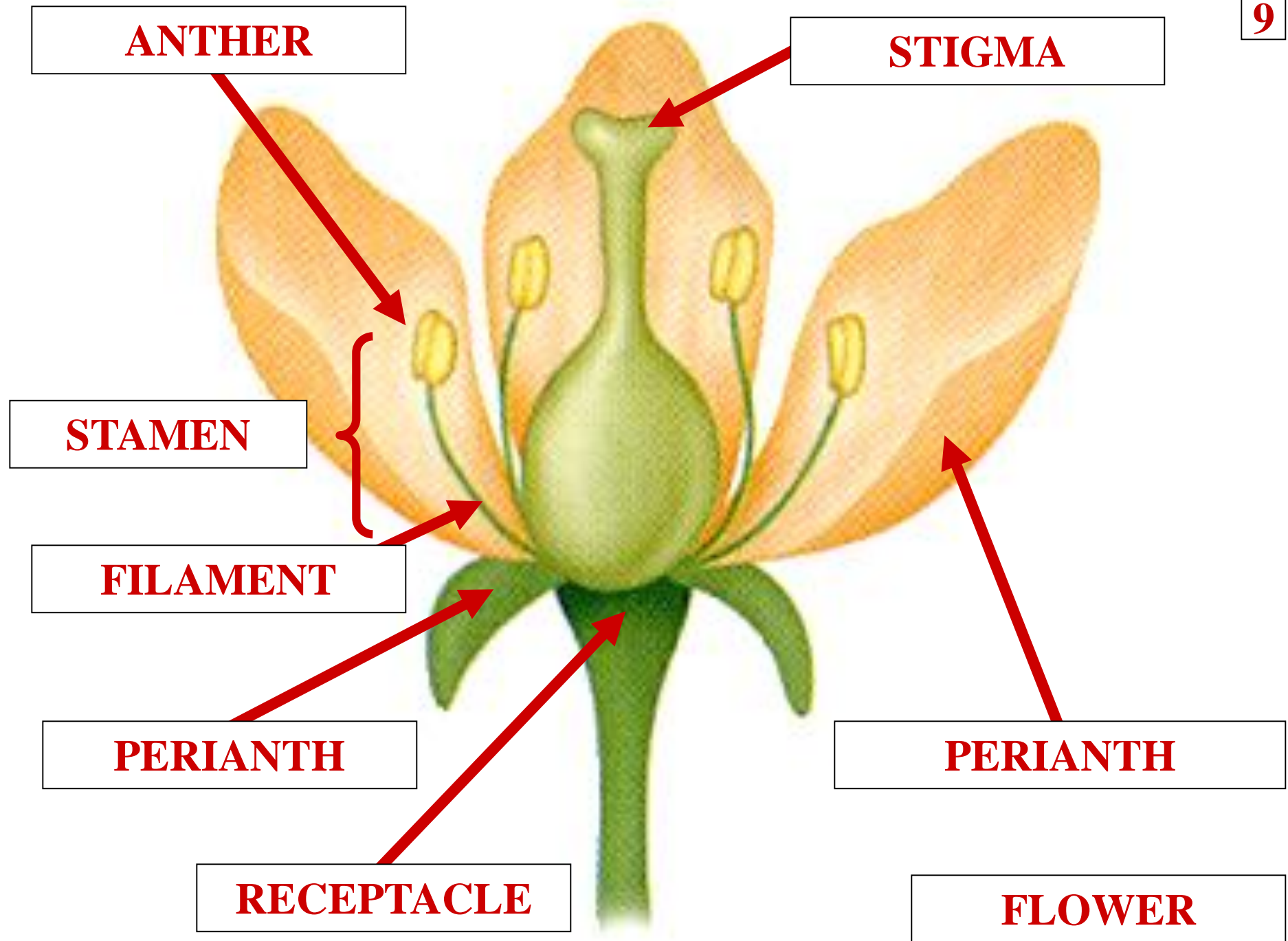
**PERIANTH**

**RECEPTACLE**

**PERIANTH**

**FLOWER**







**ANTHER**

**STIGMA**

**9**

**STAMEN**

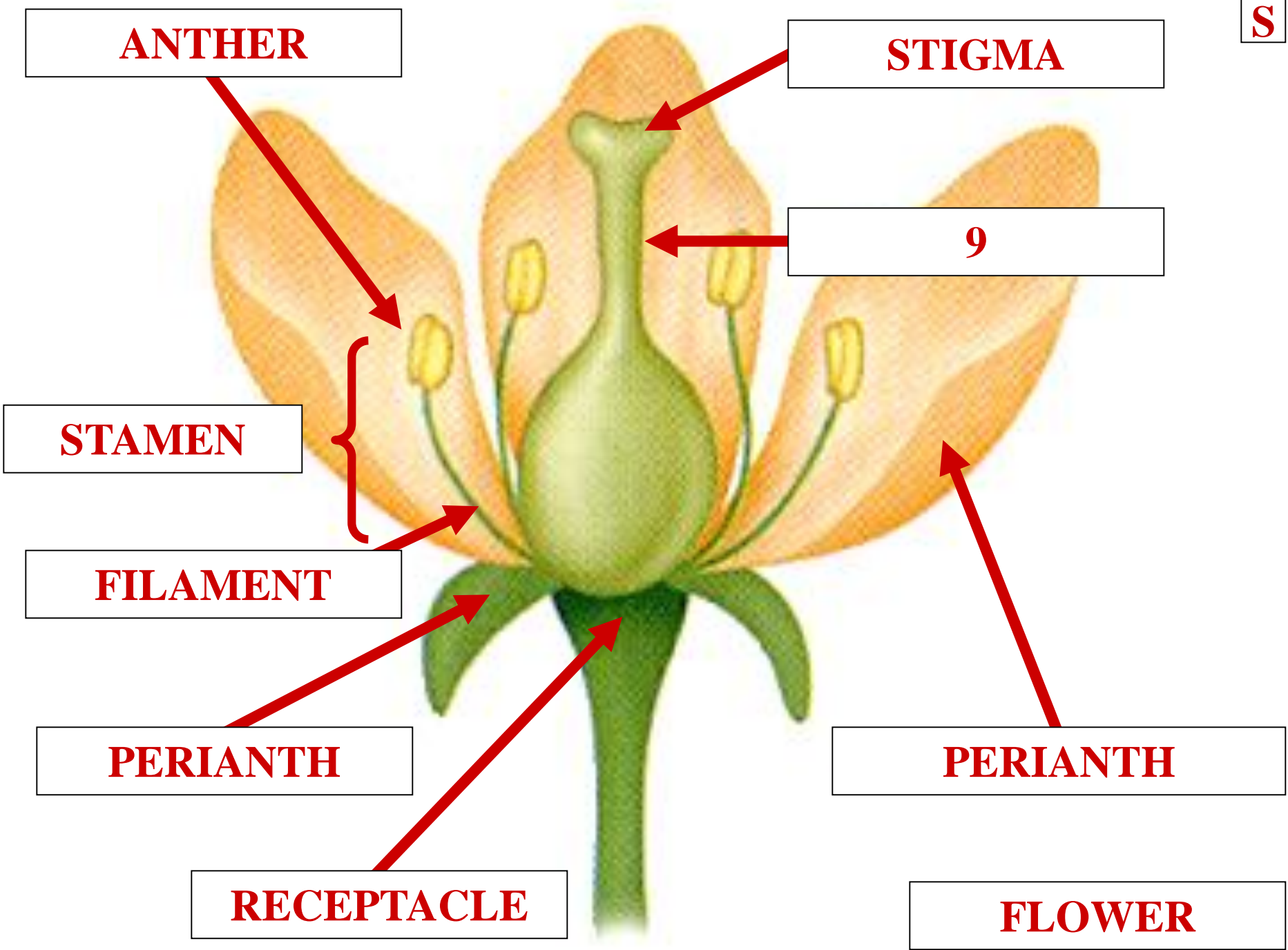
**FILAMENT**

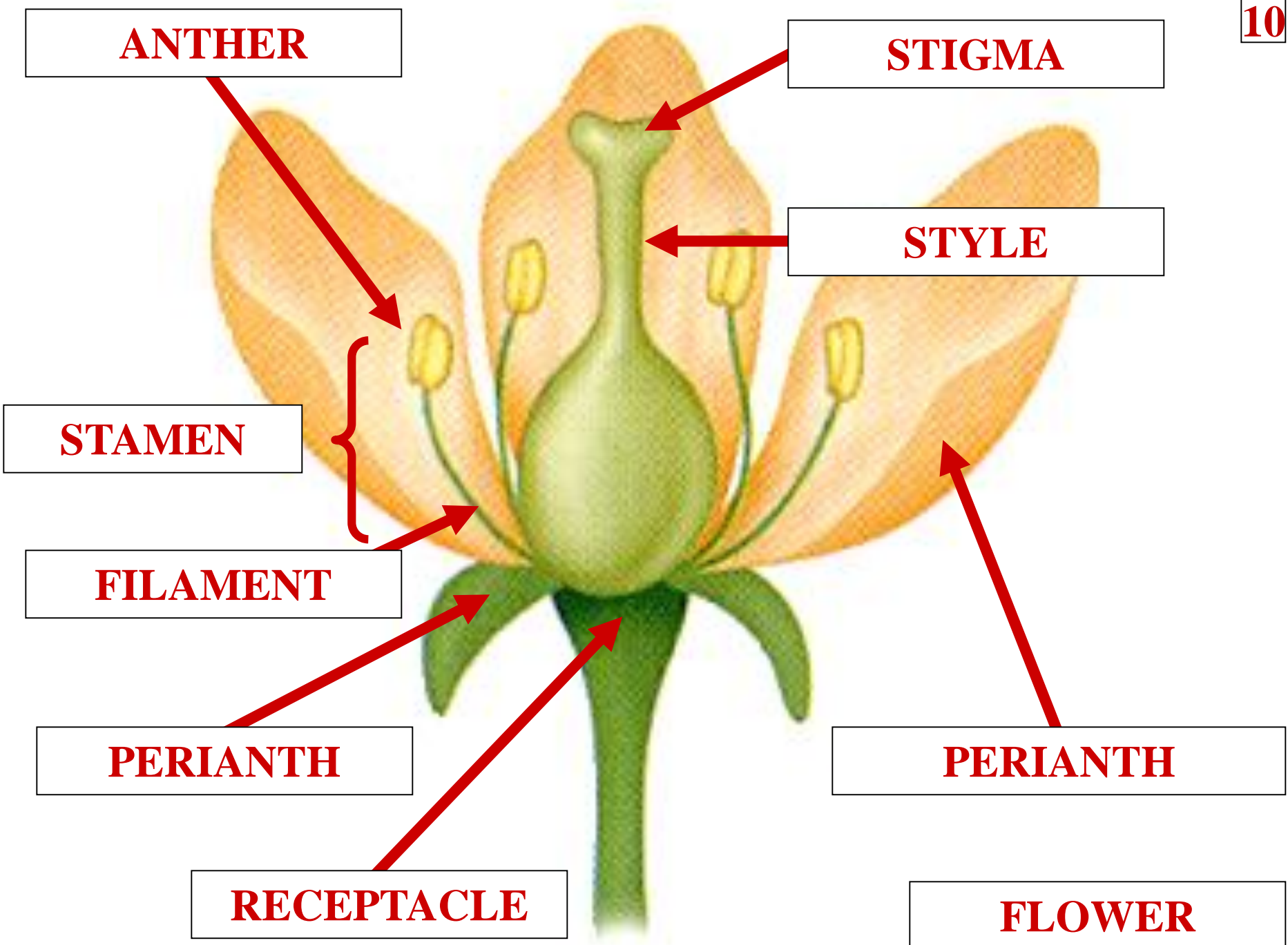
**PERIANTH**

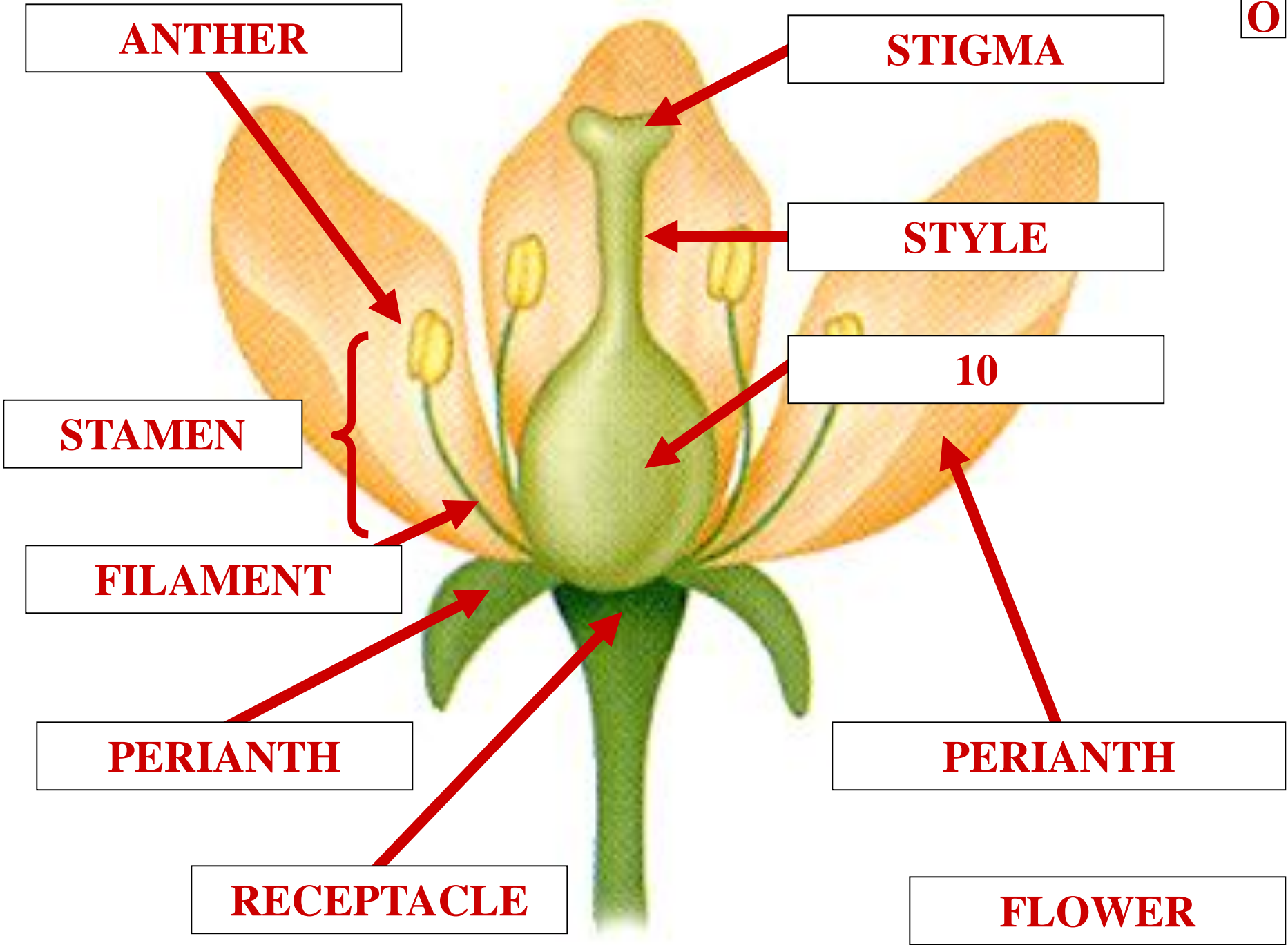
**RECEPTACLE**

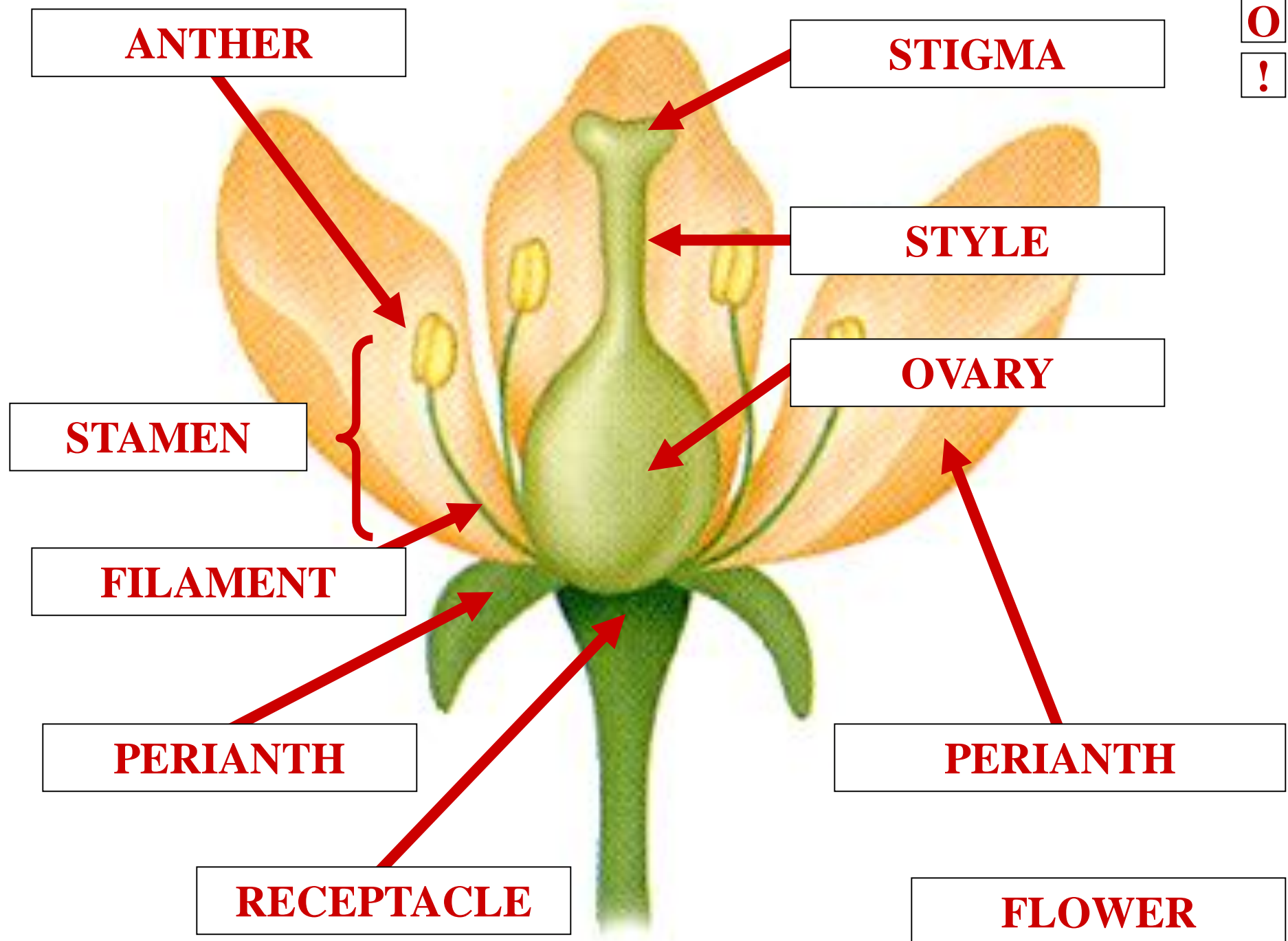
**PERIANTH**

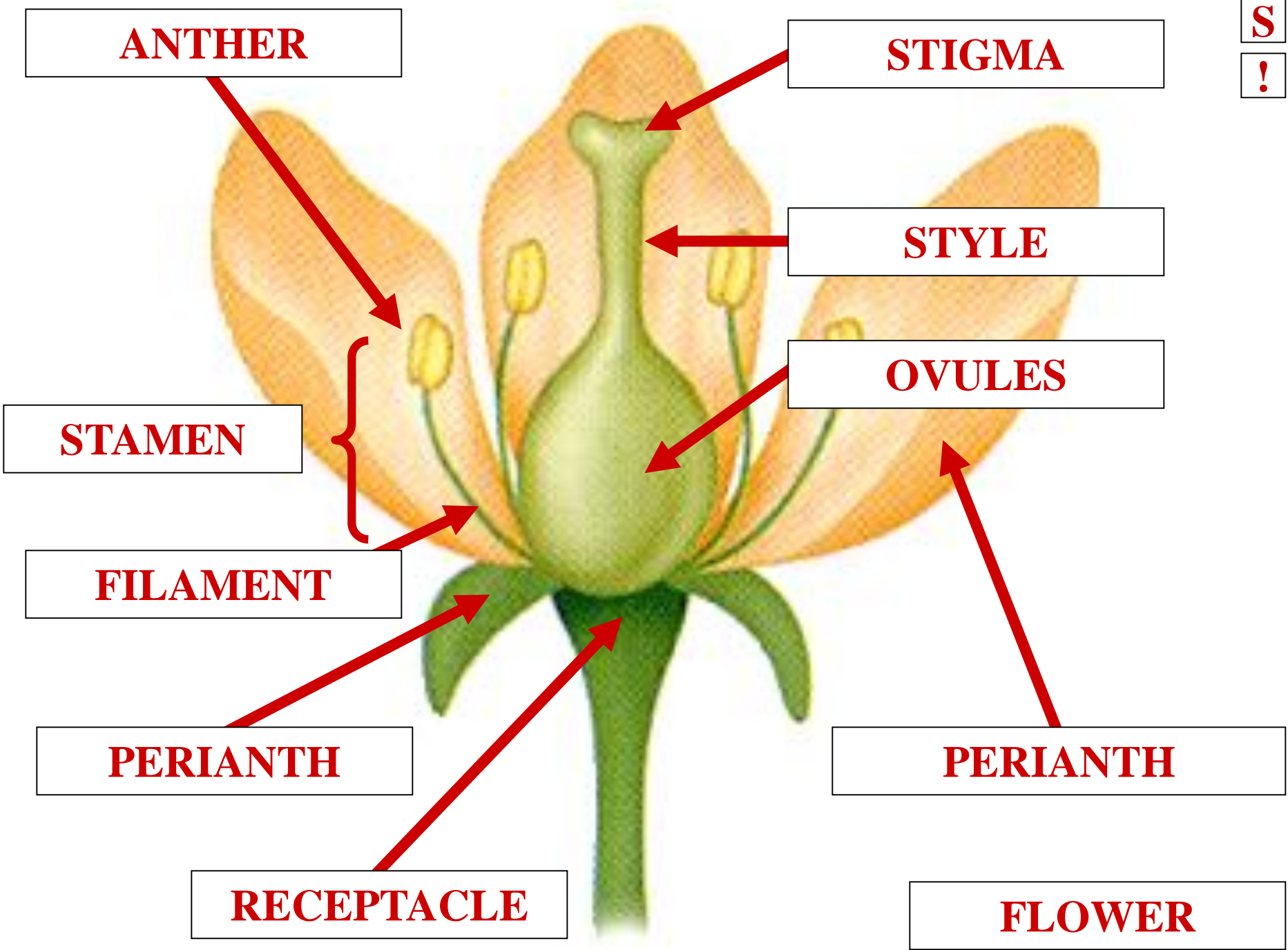
**FLOWER**

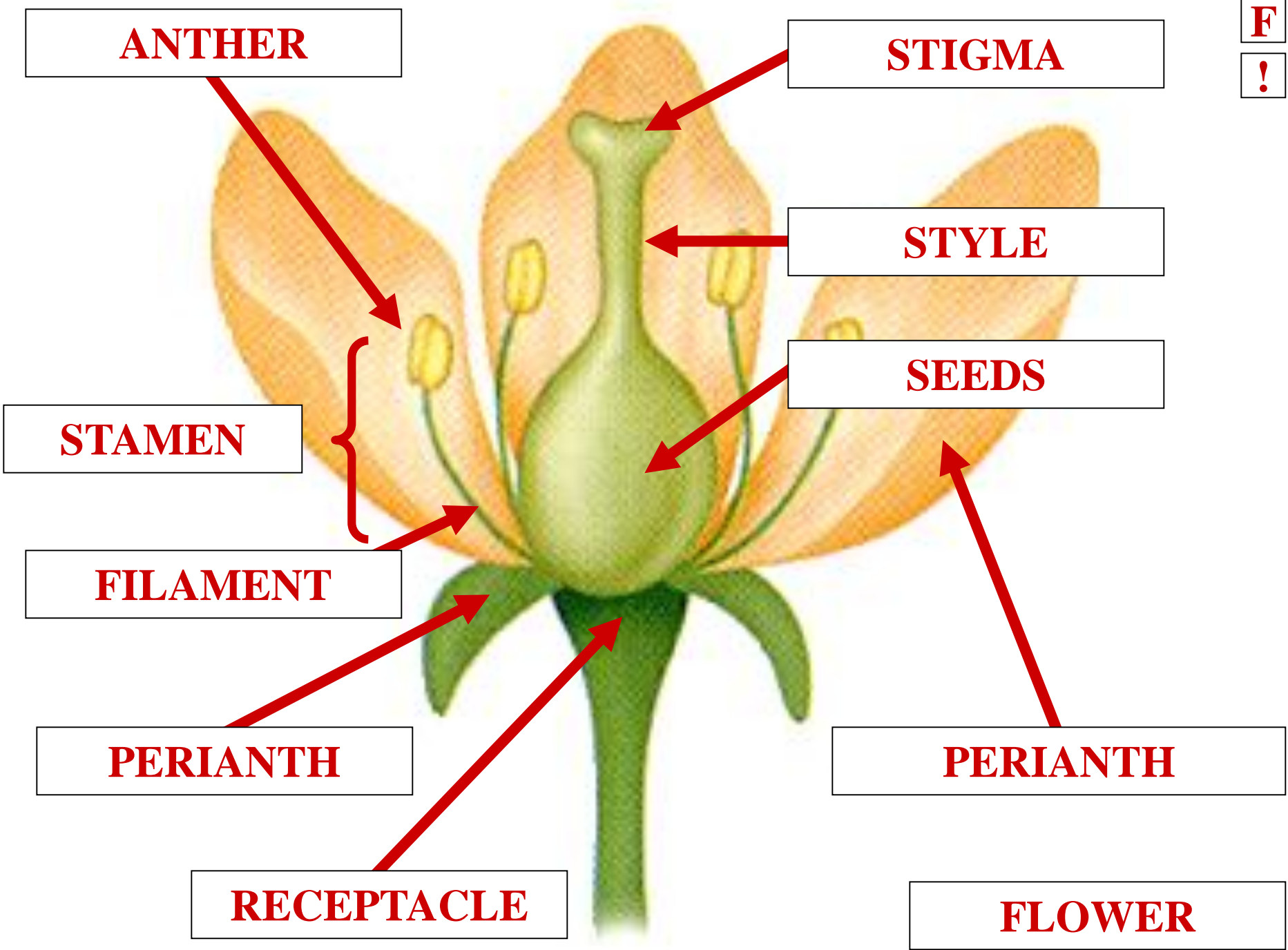


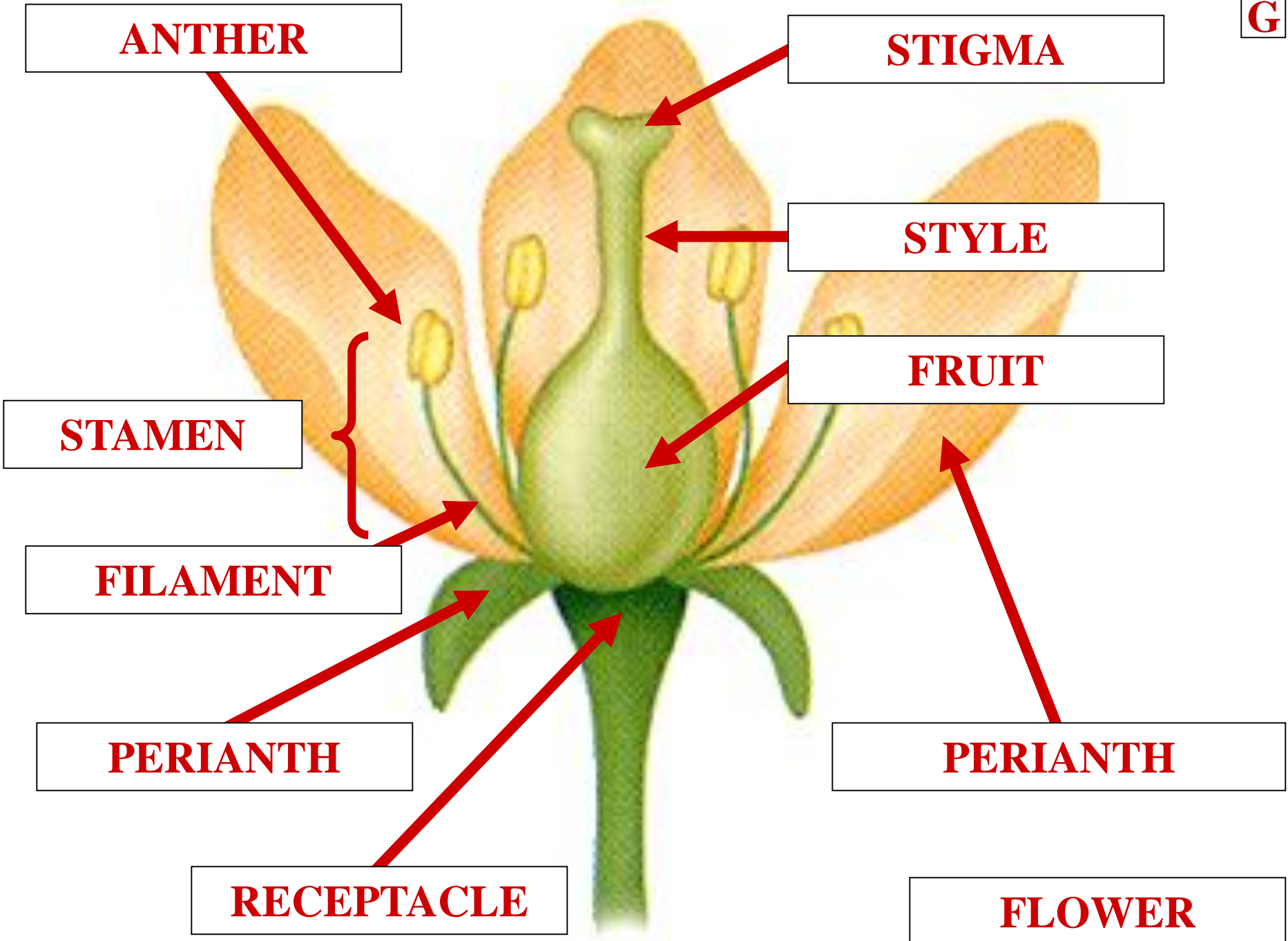














**ANTHER**

**GYNOECIUM**

**STAMEN**

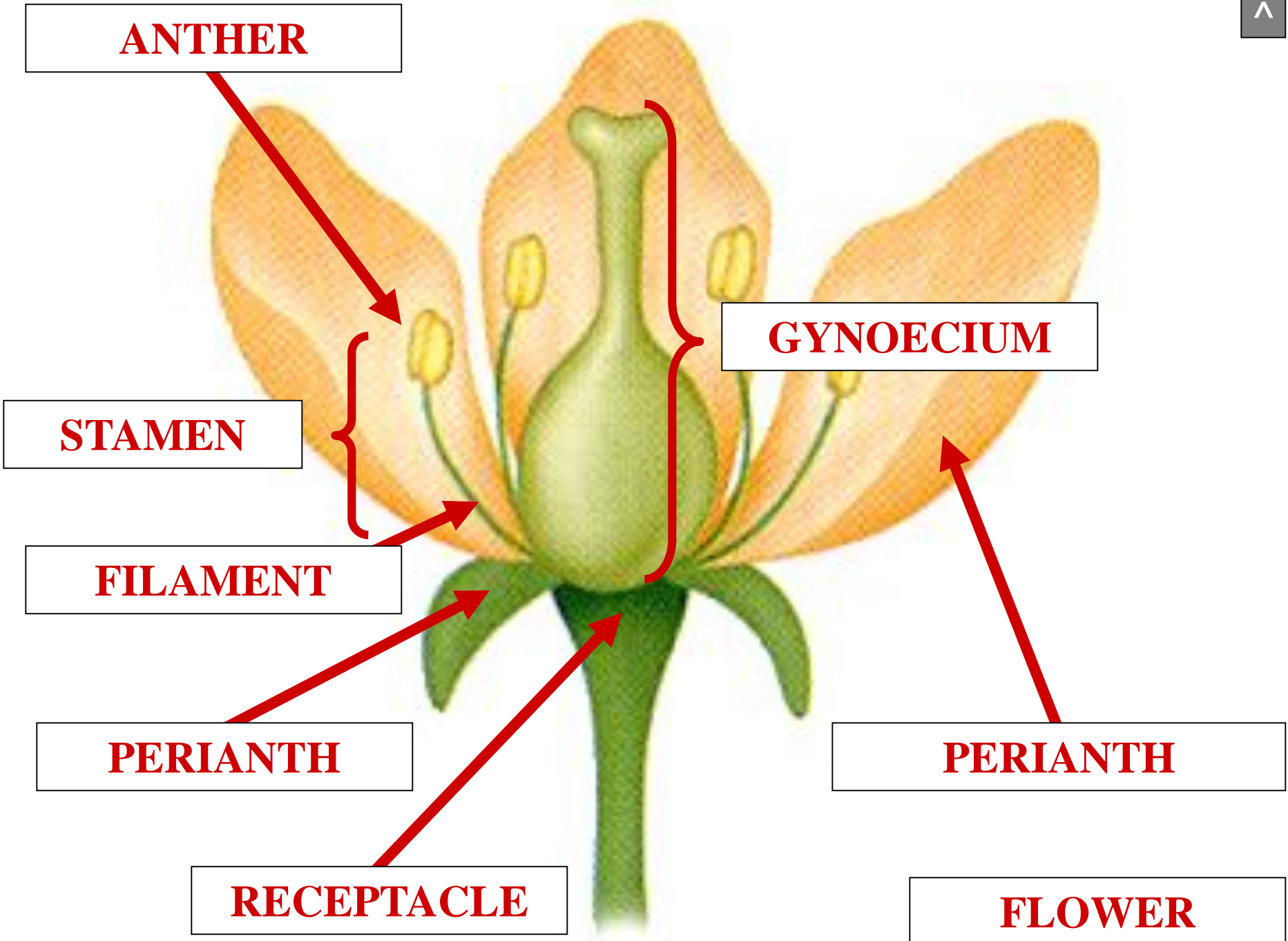
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**PERIANTH**

**RECEPTACLE**

**PERIANTH**

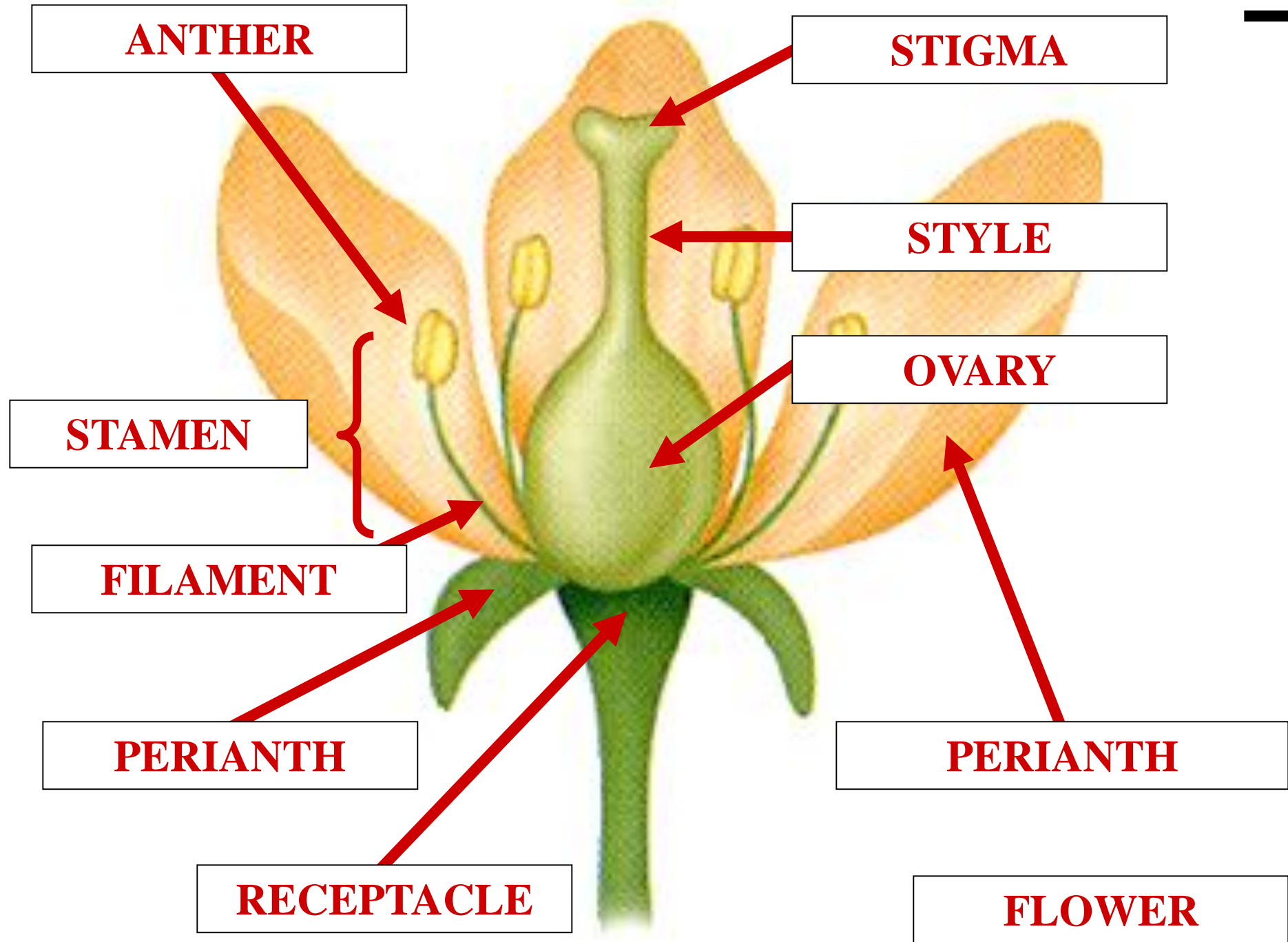
**FLOWER**

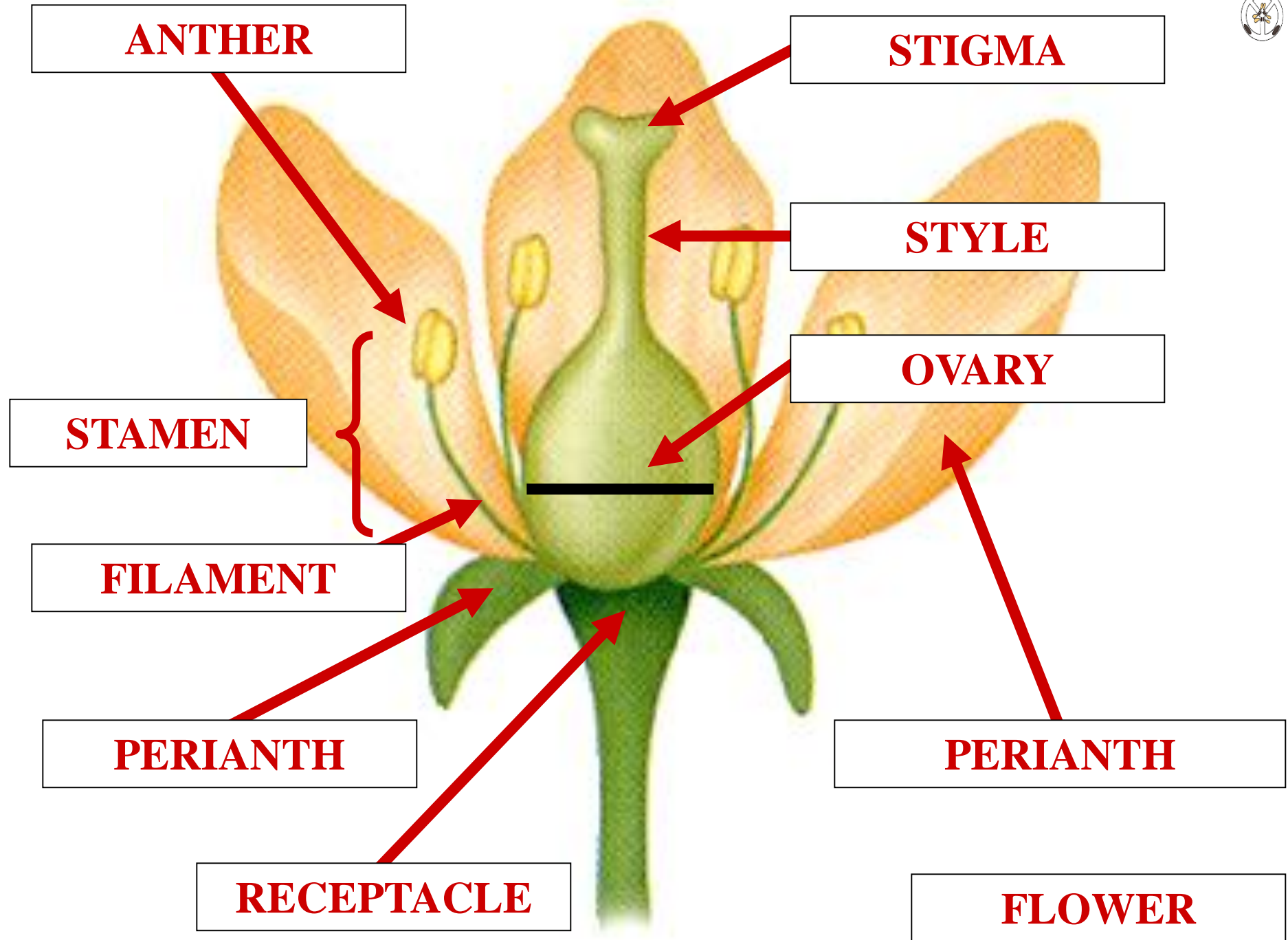


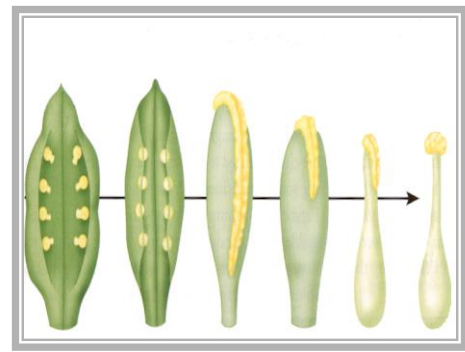
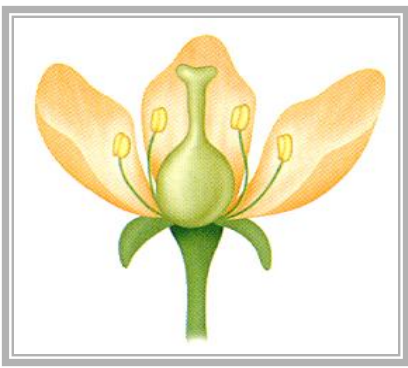




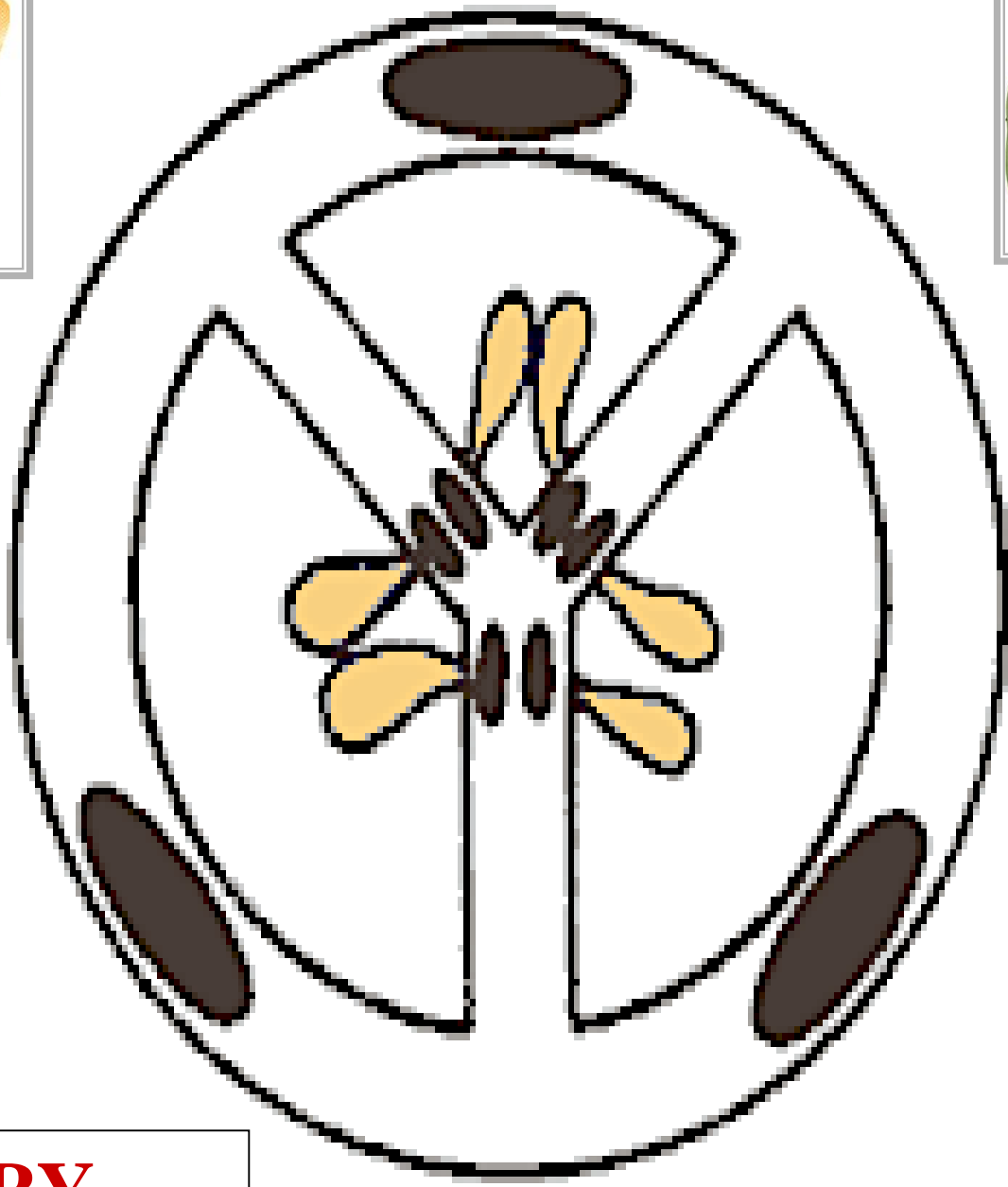
# OVARY ANATOMY





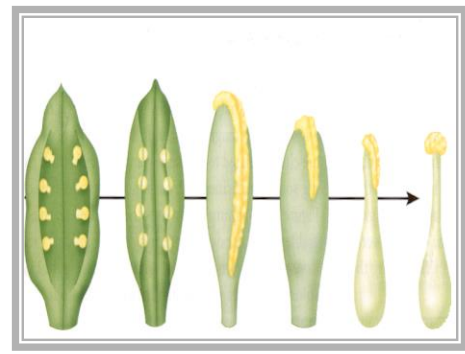
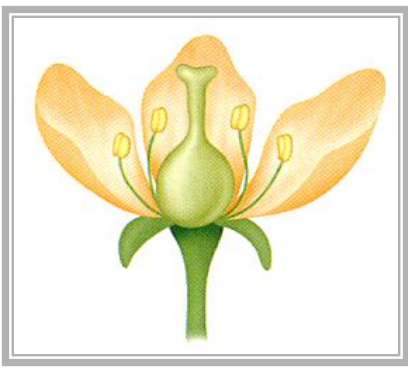


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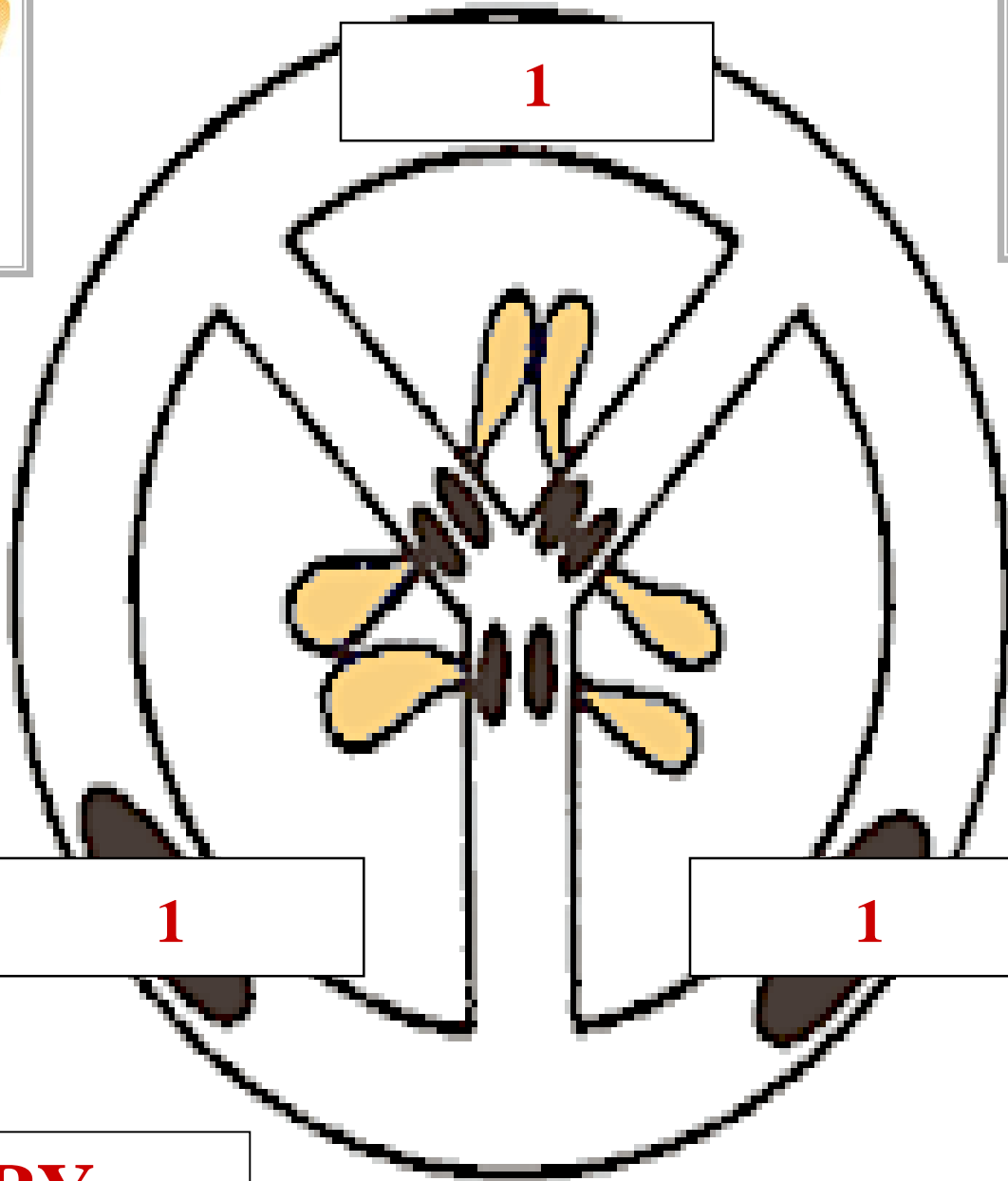


**OVARY**

**C.S.**



**C**

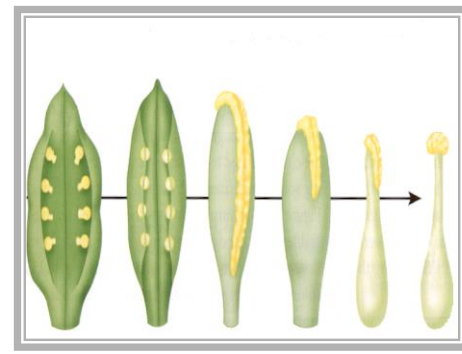
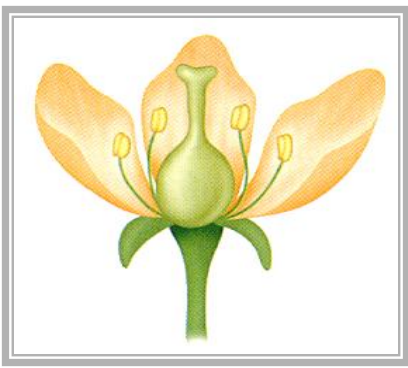


**1**

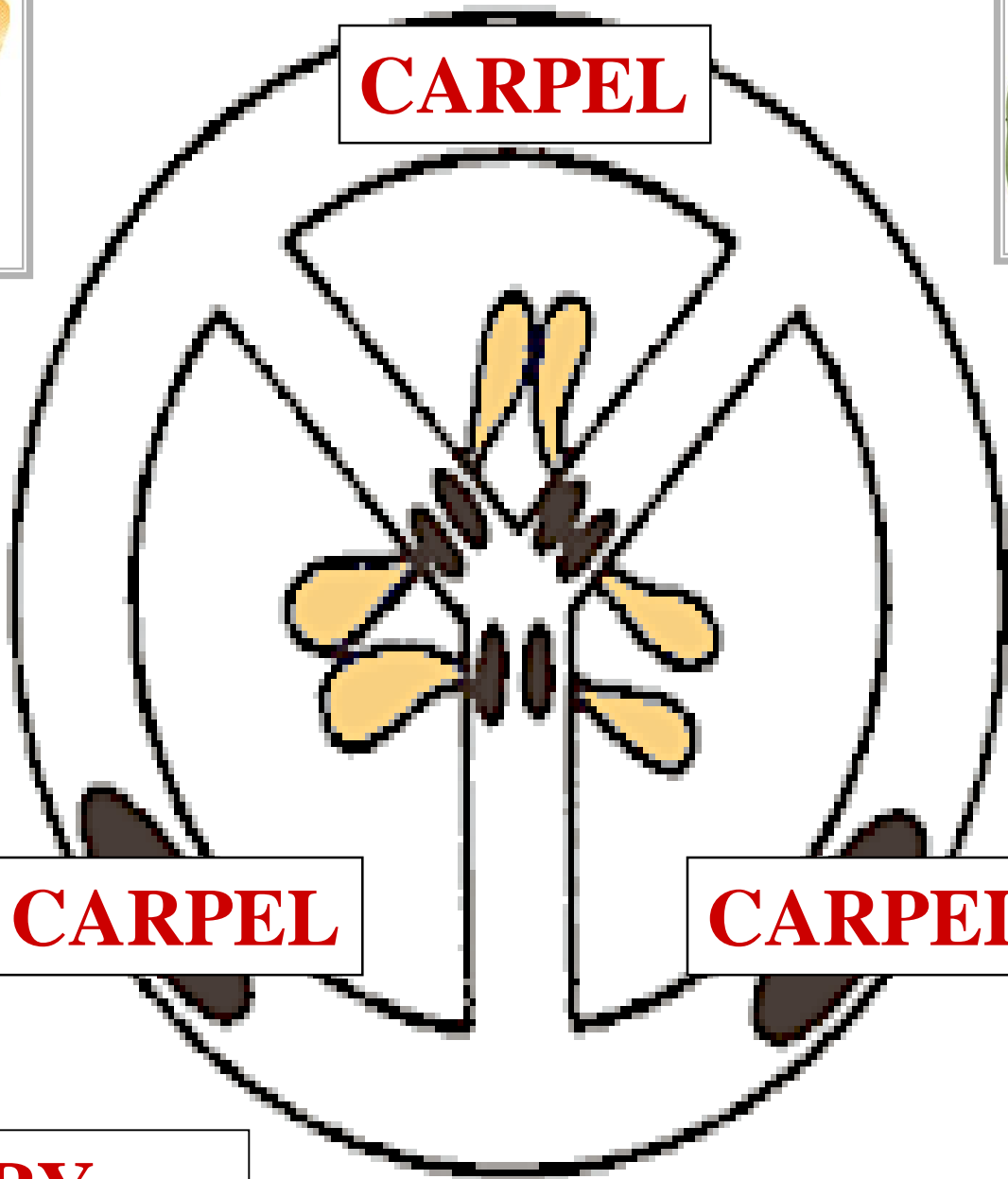
**1**

**OVARY**

**C.S.**



2



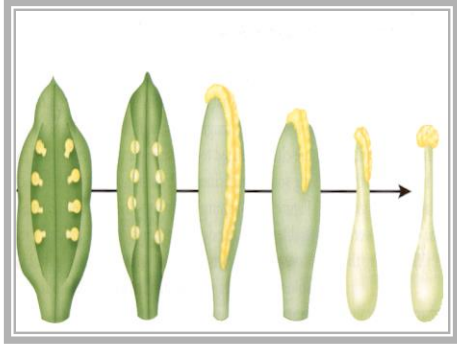
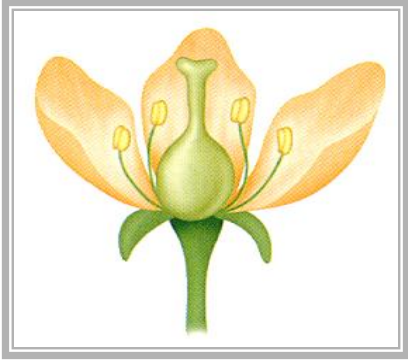
**CARPEL**

**CARPEL**

**CARPEL**

**OVARY**

**C.S.**



**L**

**CARPEL**

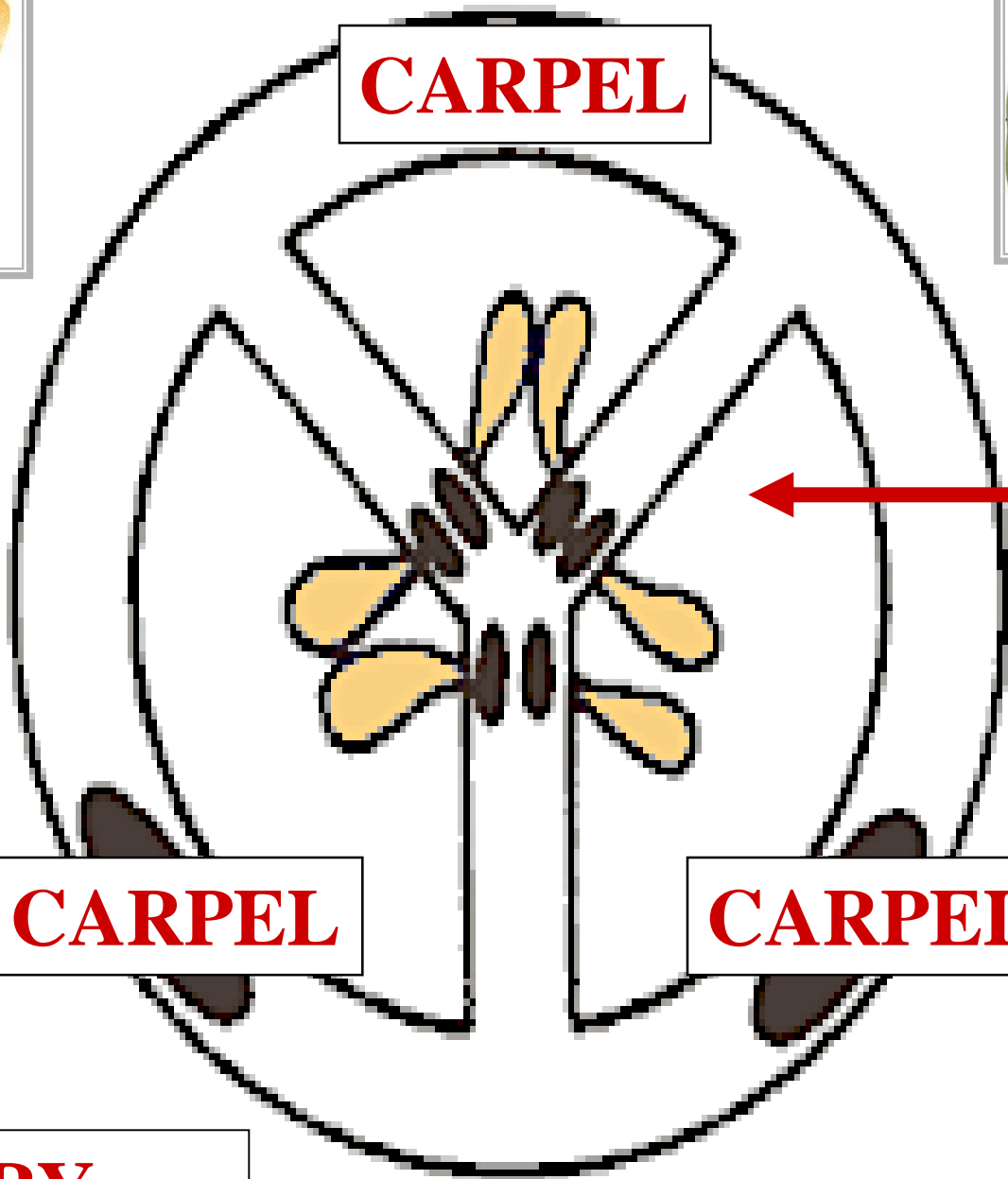
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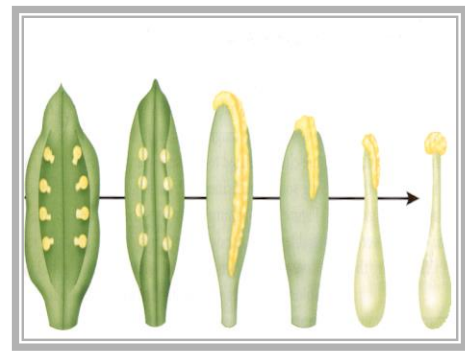
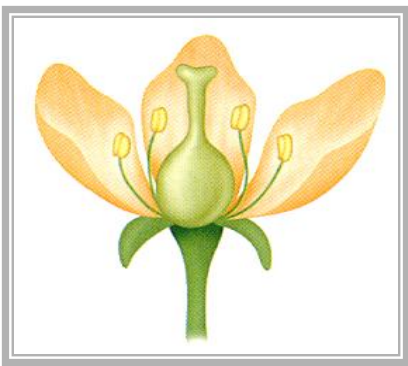
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**2**

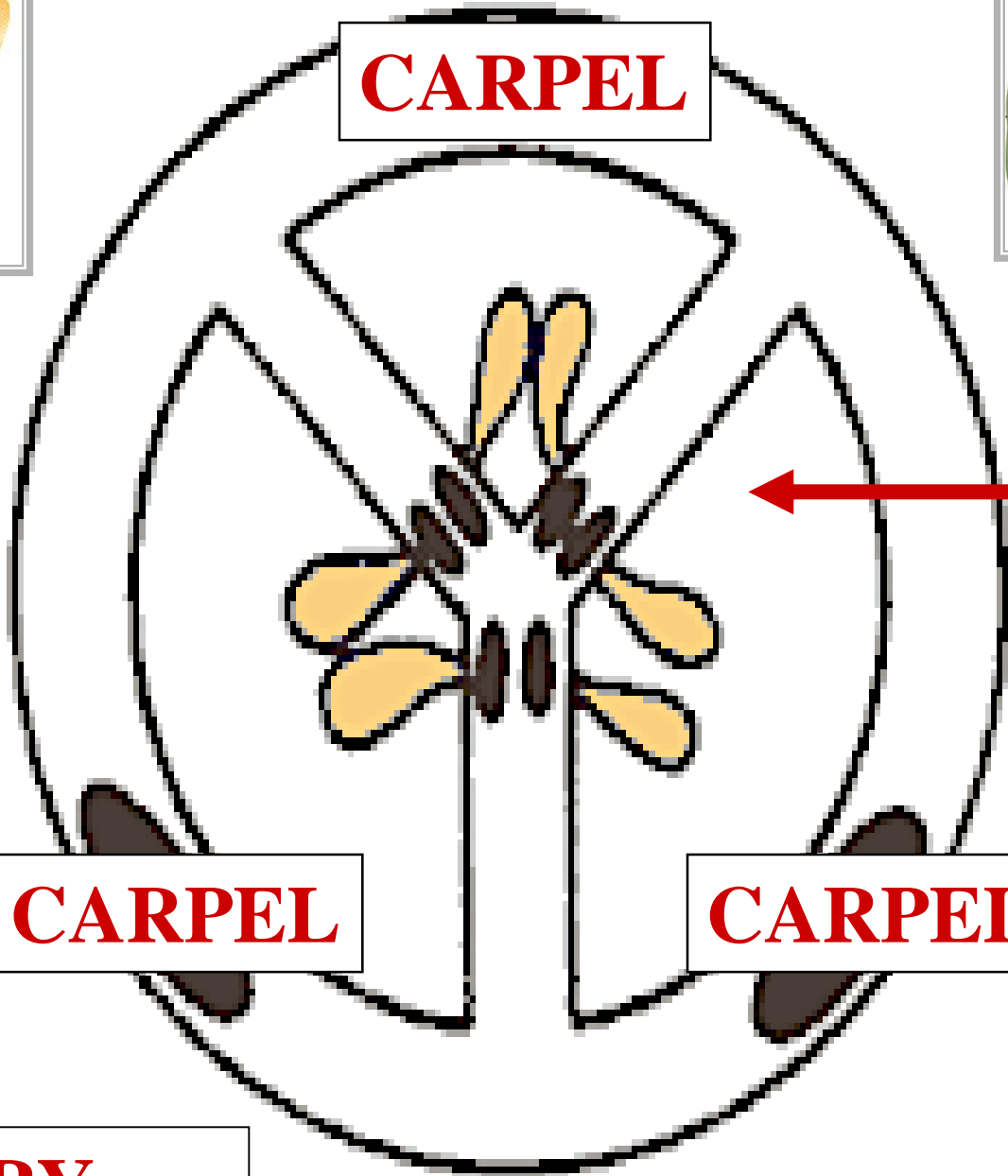
**OVARY**

**C.S.**





3



**CARPEL**

**LOCULE**

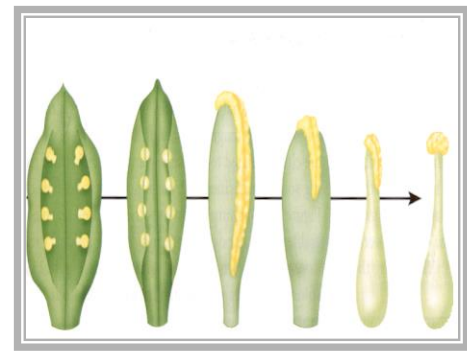
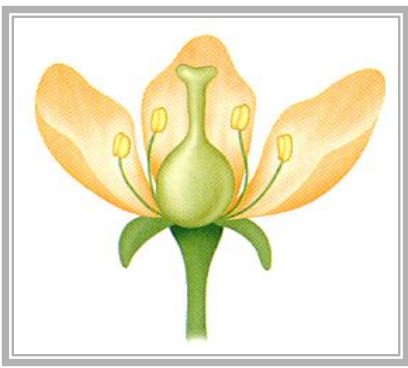
**CARPEL**

**CARPEL**

**OVARY**

**C.S.**





3

CARPEL

LOCULE

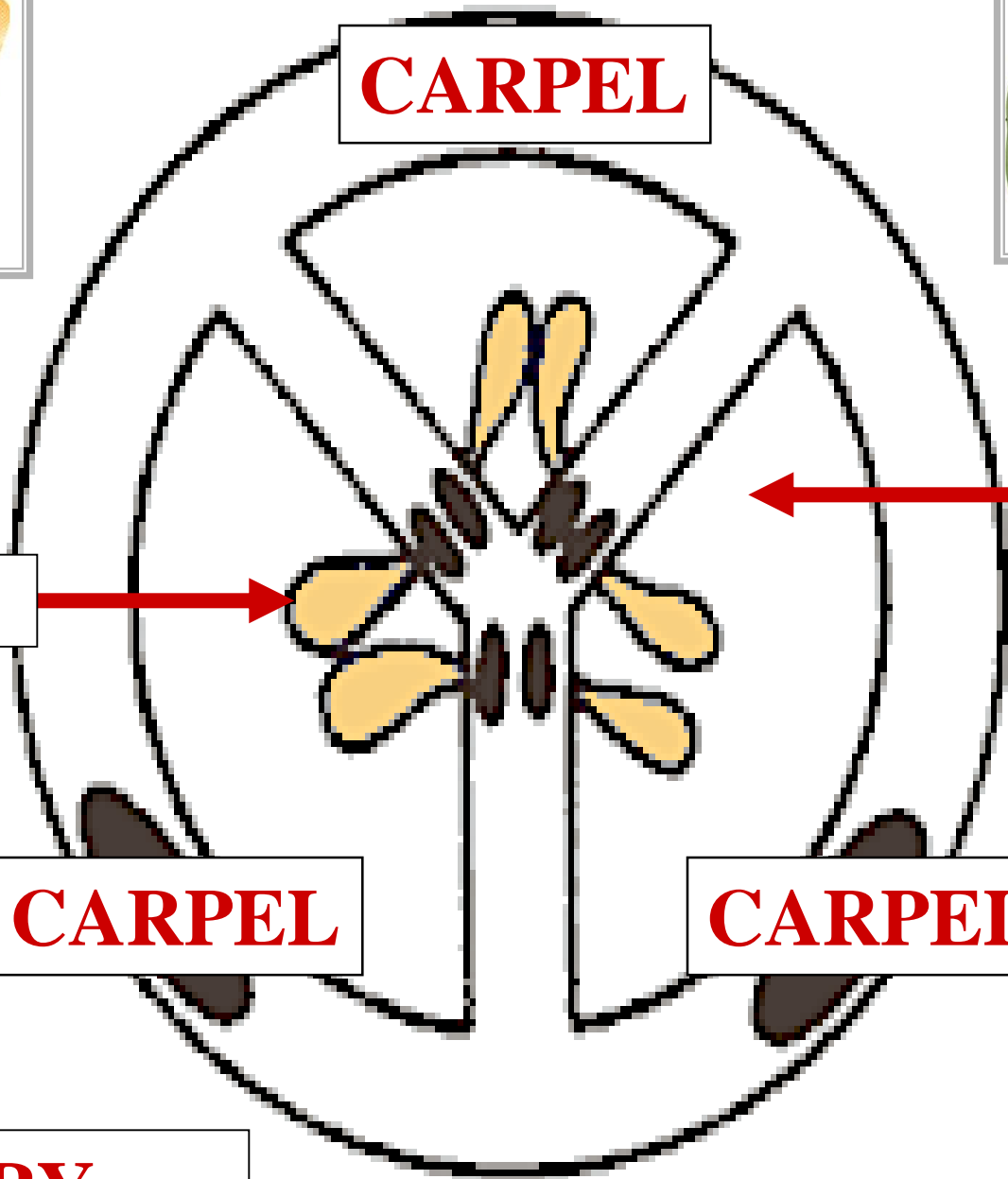
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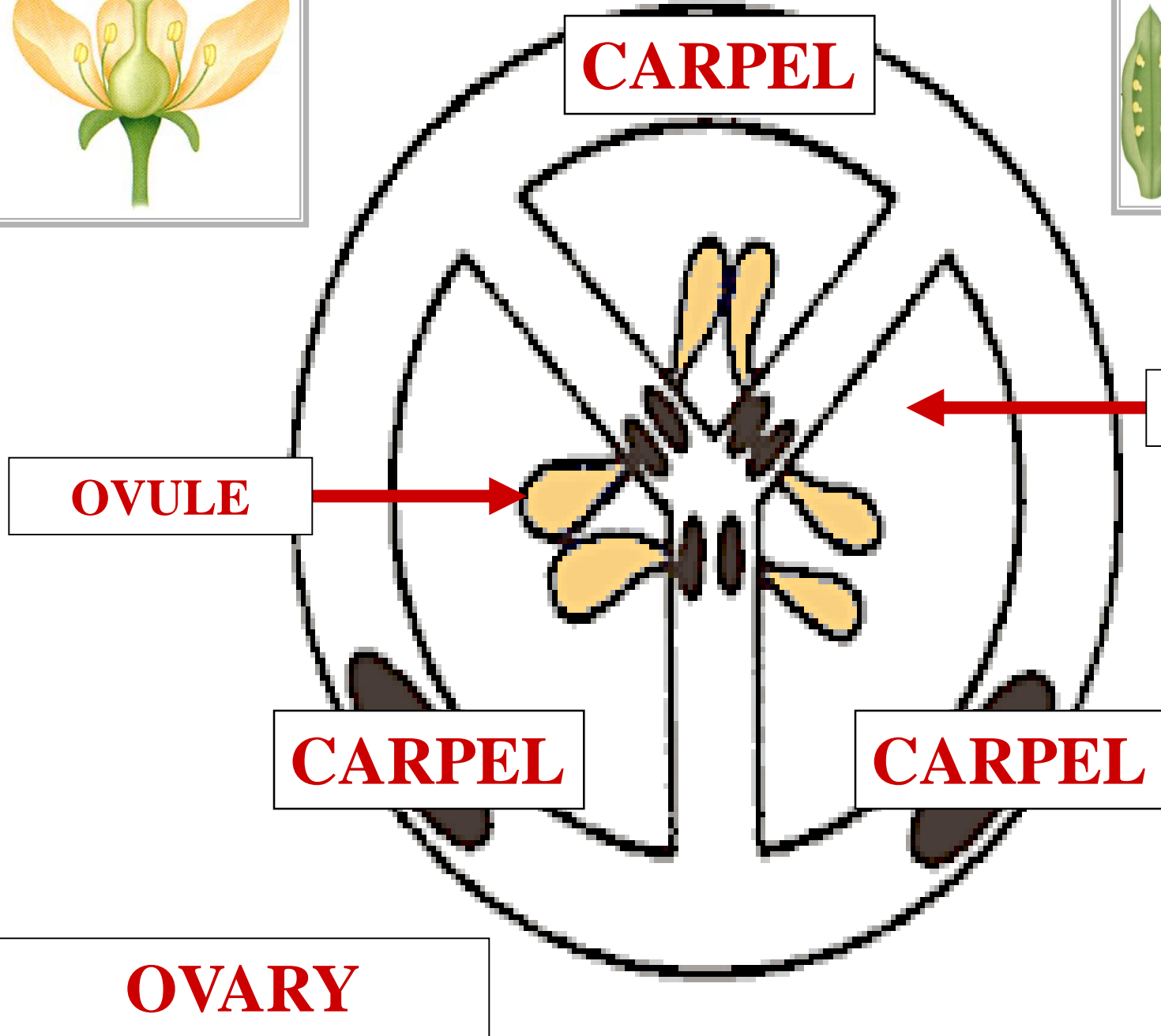
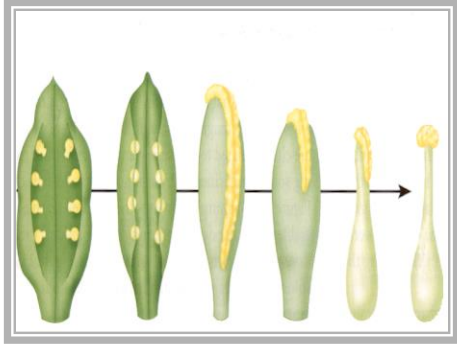
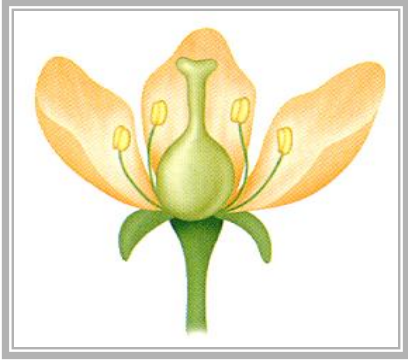
CARPEL

CARPEL

OVARY

C.S.





**CARPEL**

**OVULE**

**LOCULE**

**CARPEL**

**CARPEL**

**OVARY**

**C.S.**

# **OVARY POSITION**



# **HYPOGYNOUS FLOWER**



1



2



3

S

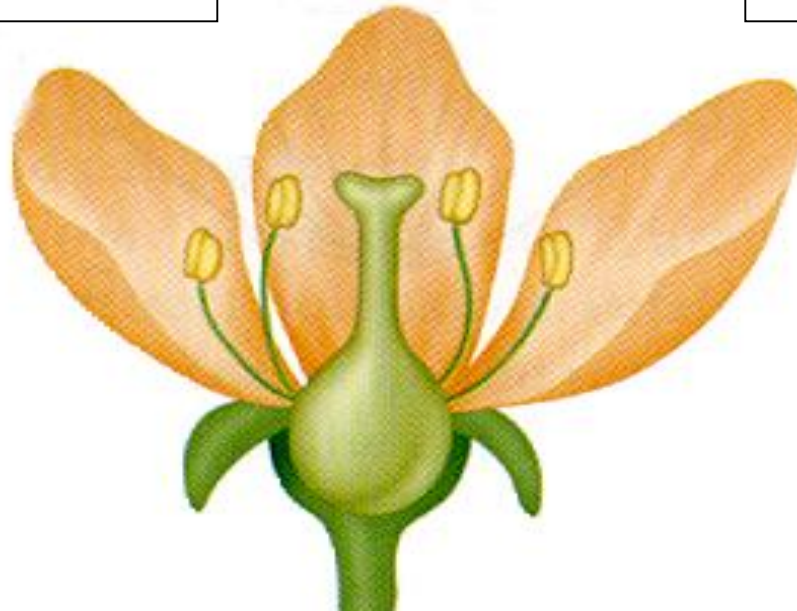
!



**HYPOGYNOUS**



**2**



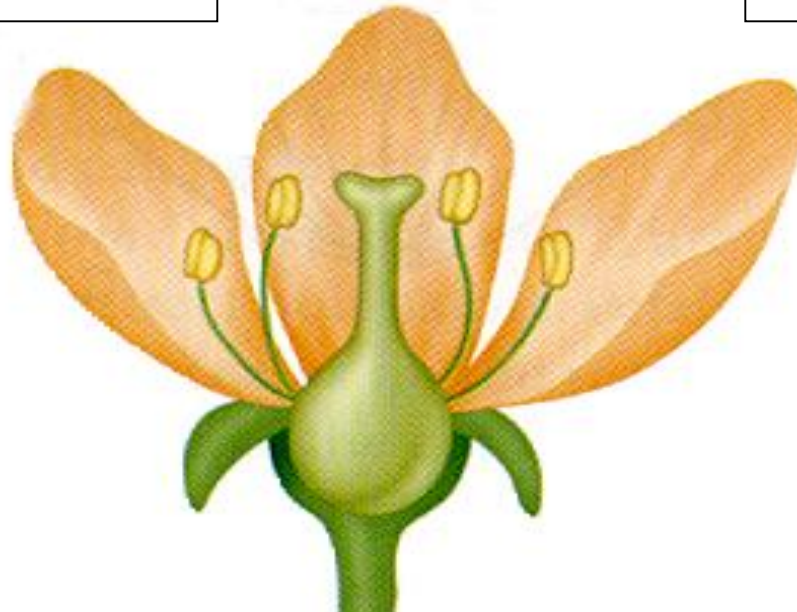
**3**



**SUPERIOR**



**2**



**3**



# EPIGYNOUS FLOWER

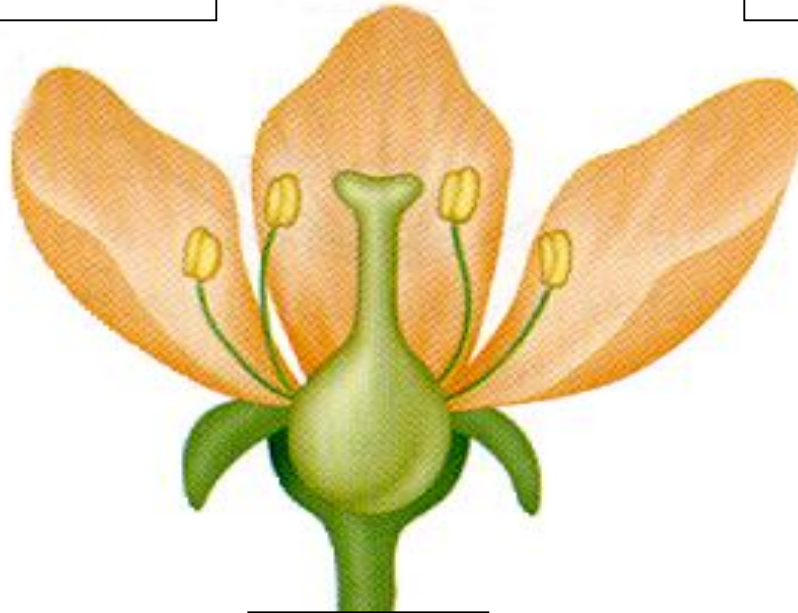




**HYPOGYNOUS**



**2**



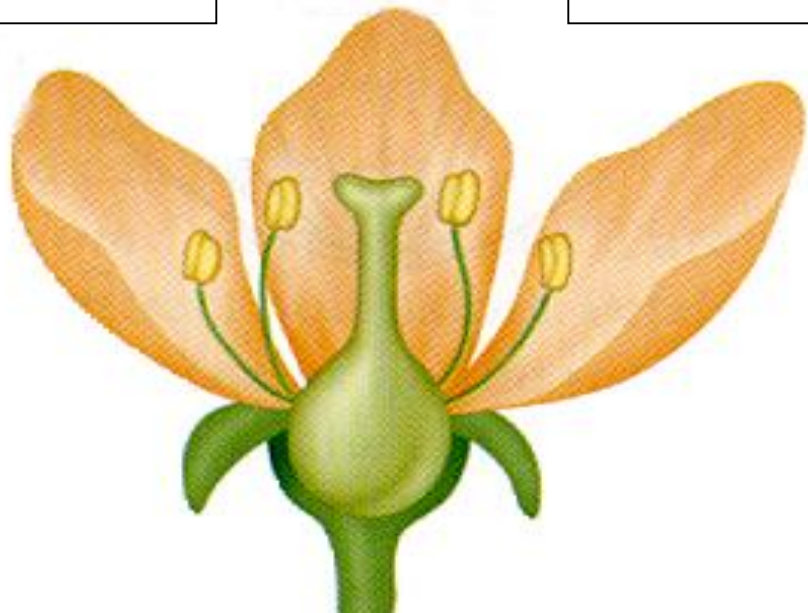
**3**



**HYPOGYNOUS**



**EPIGYNOUS**



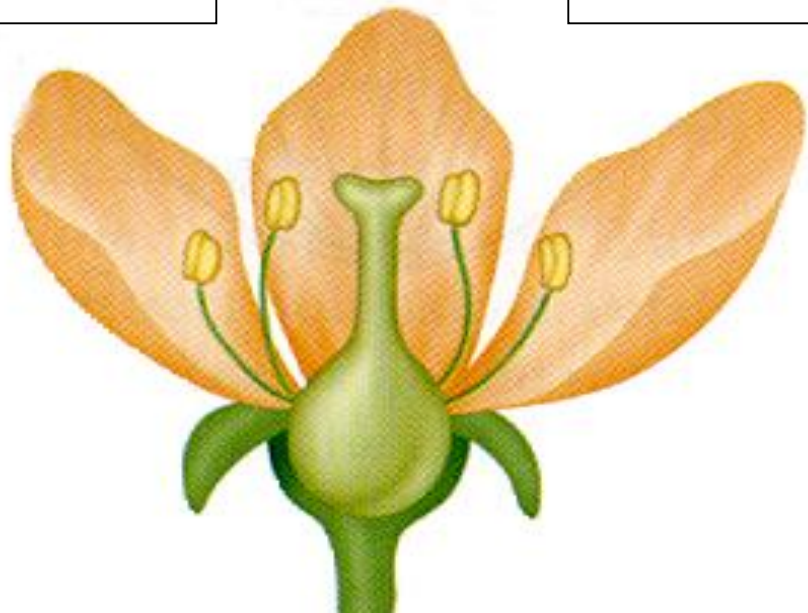
**3**



**HYPOGYNOUS**



**INFERIOR**



**3**



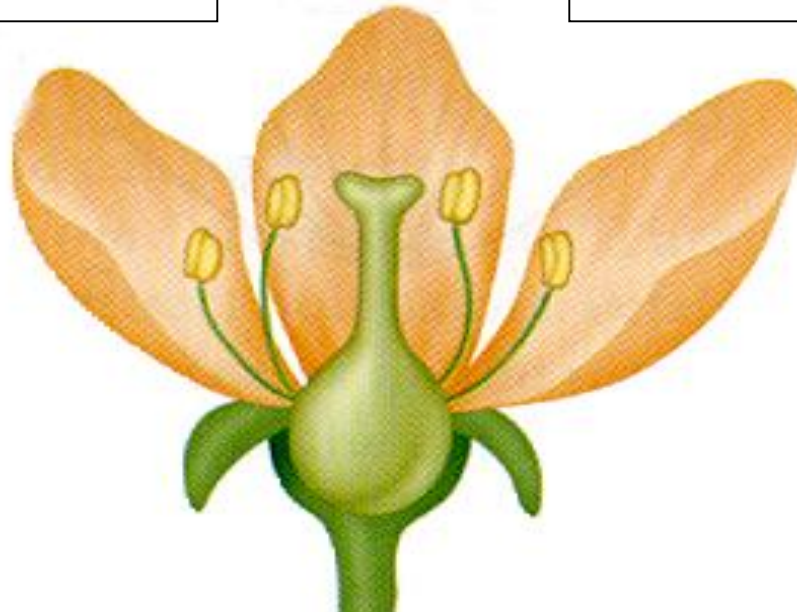
# PERIGYNOUS FLOWER



**HYPOGYNOUS**



**EPIGYNOUS**



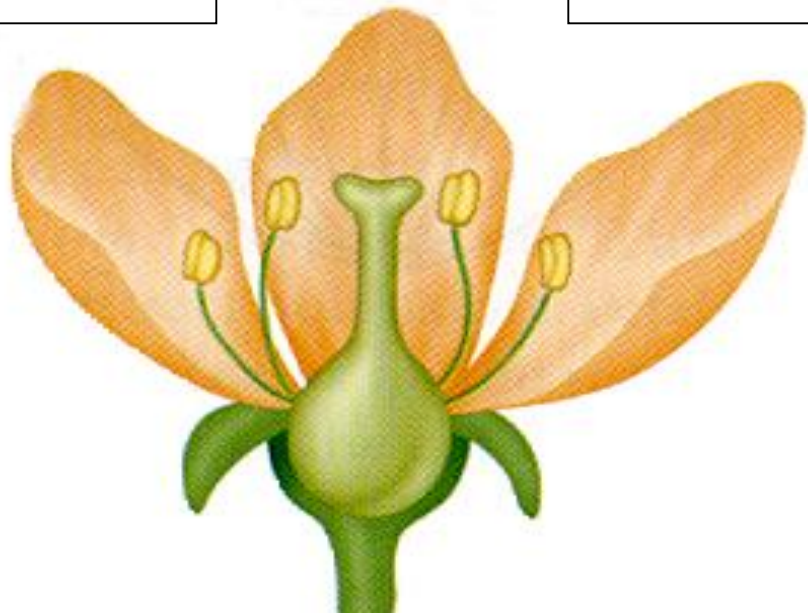
**3**



**HYPOGYNOUS**



**EPIGYNOUS**



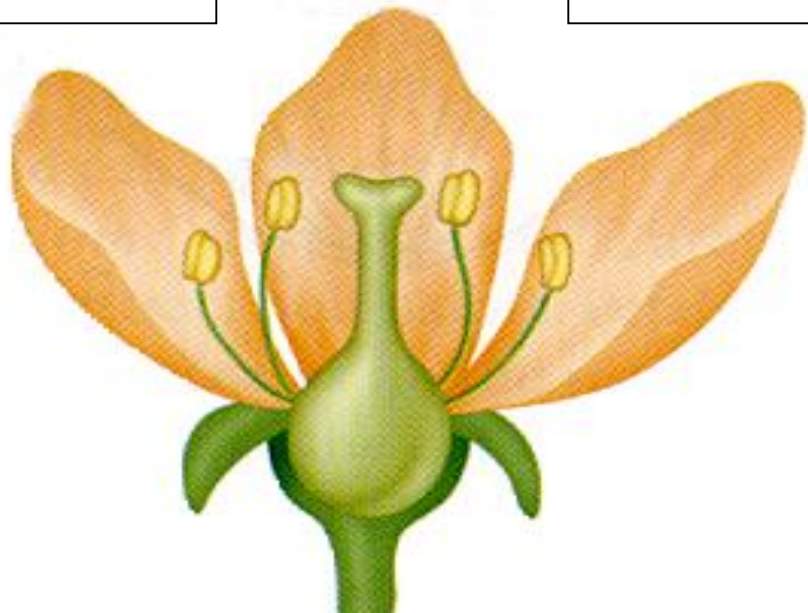
**PERIGYNOUS**



**HYPOGYNOUS**



**EPIGYNOUS**



**SUPERIOR**

# GENERAL FLOWER TERMS



**COMPLETE  
FLOWER  
VS  
INCOMPLETE  
FLOWER**



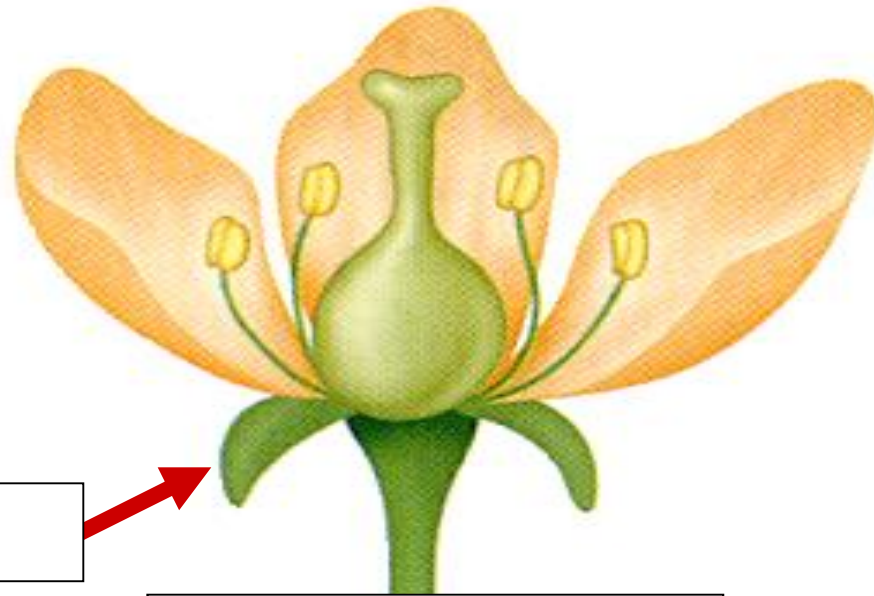
# COMPLETE FLOWER



**COMPLETE**



**INCOMPLETE**

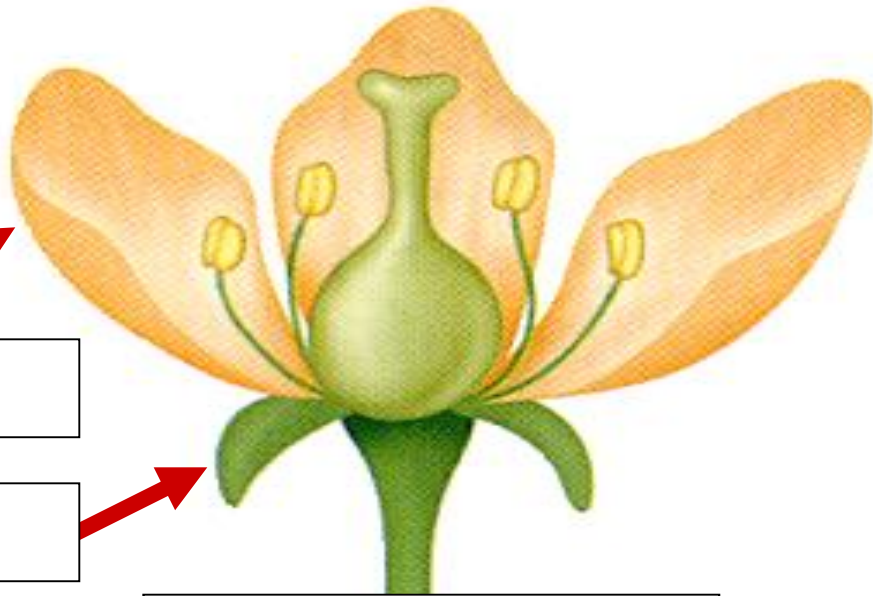


**CALYX**

**COMPLETE**



**INCOMPLETE**



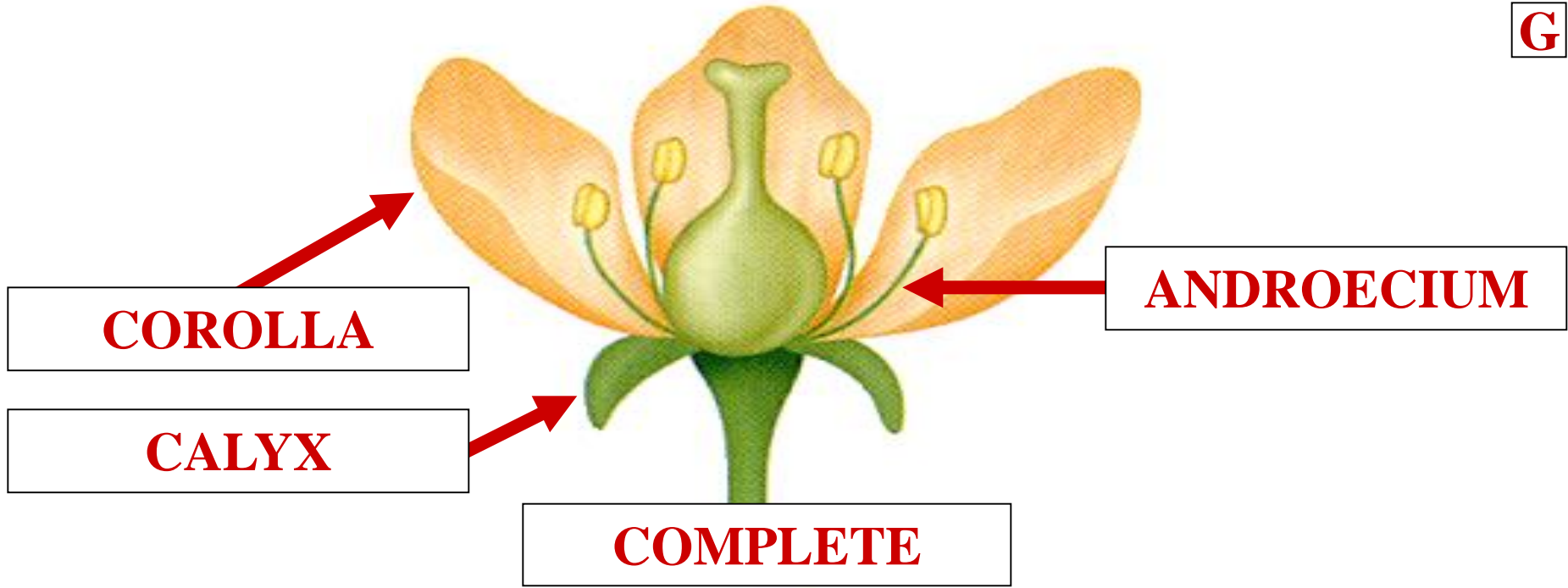
**COROLLA**

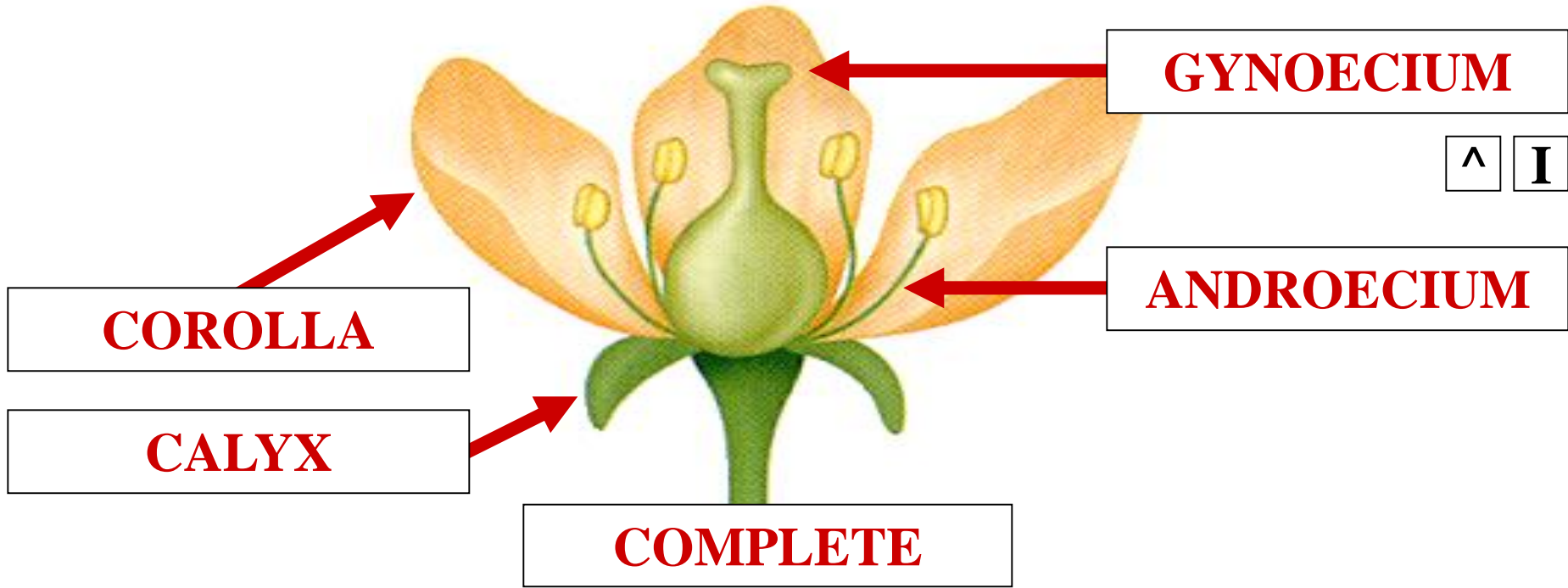
**CALYX**

**COMPLETE**



**INCOMPLETE**





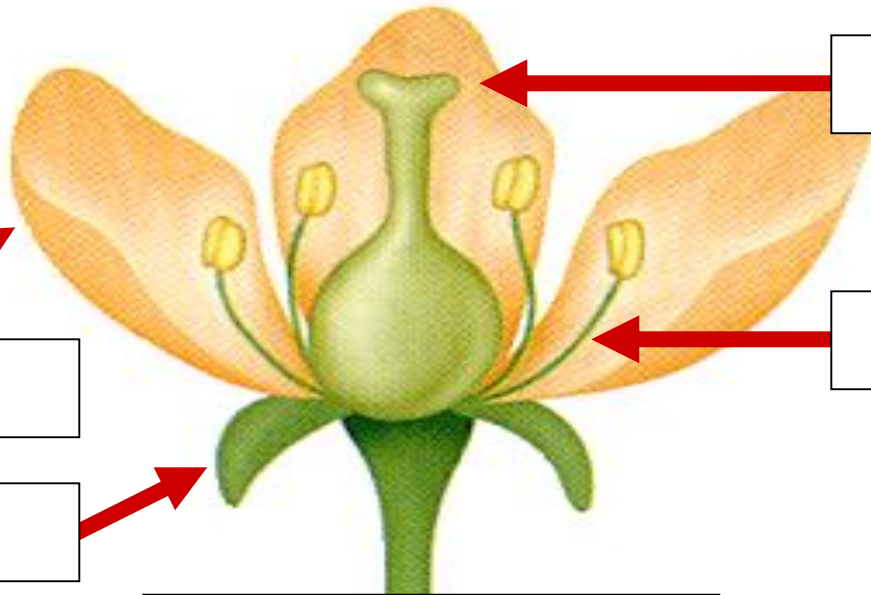


# INCOMPLETE FLOWER





**A**



**COROLLA**

**CALYX**

**GYNOECIUM**

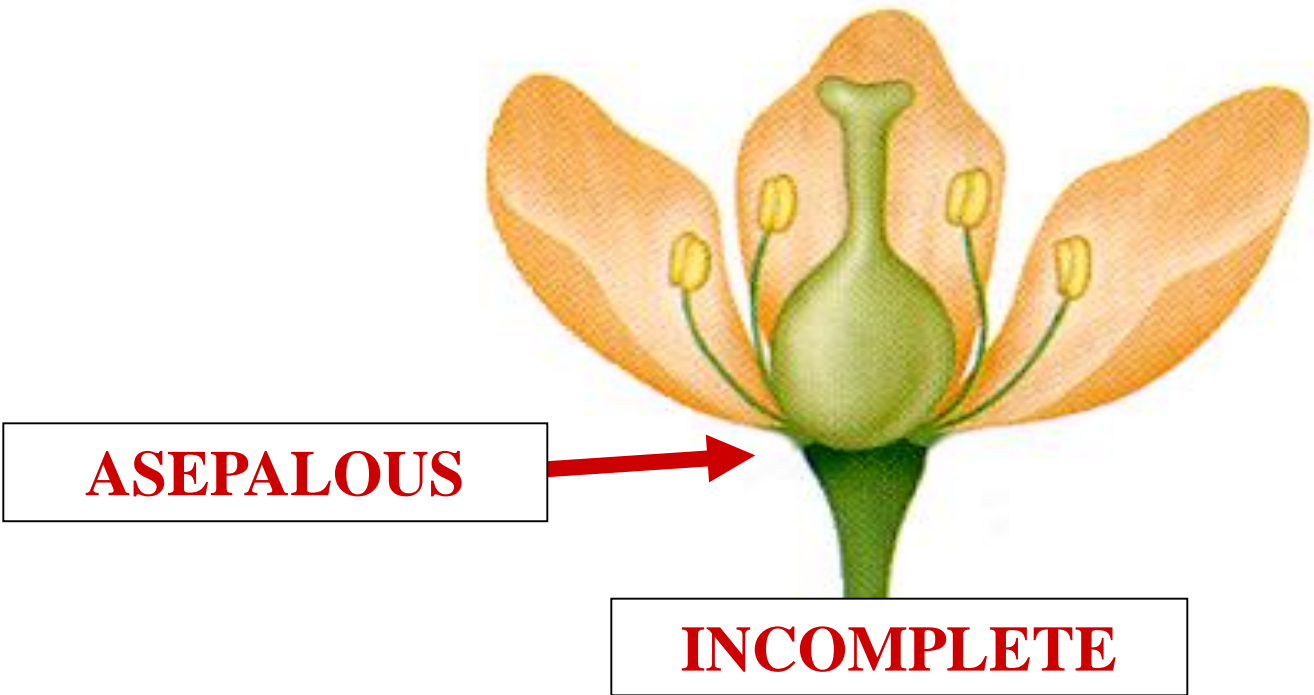
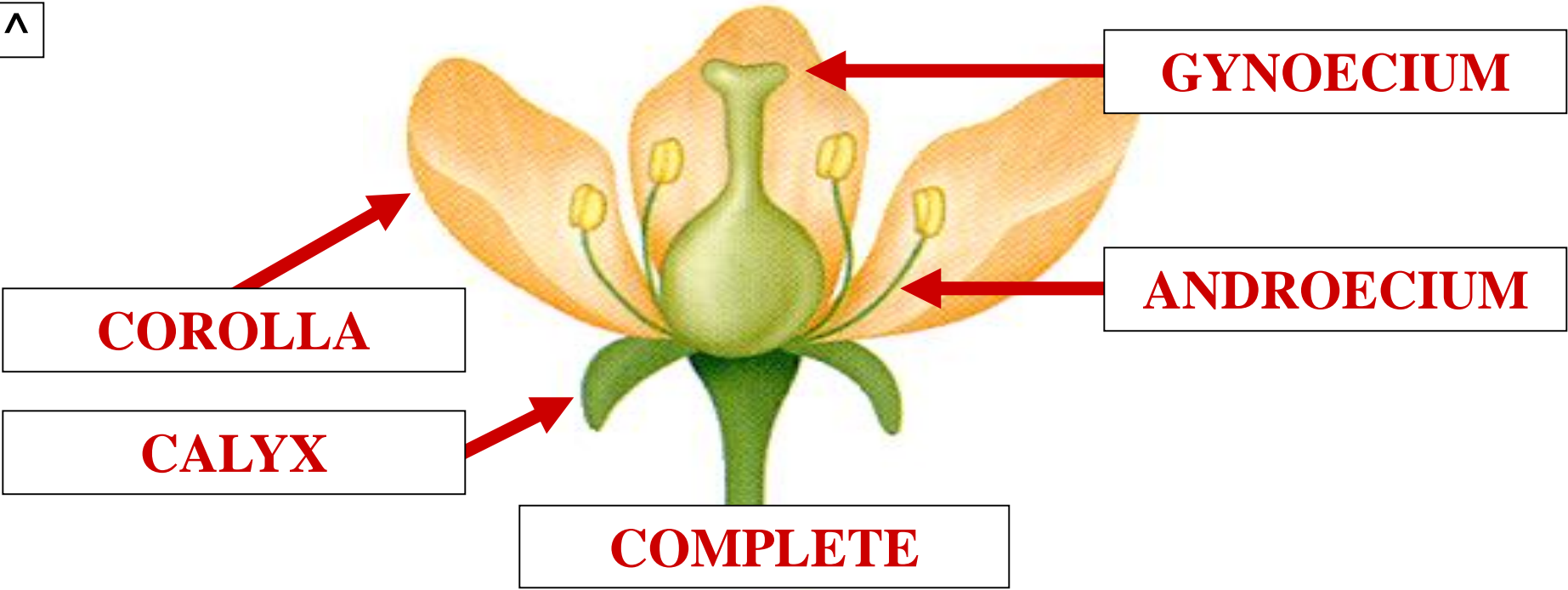
**ANDROECIUM**

**COMPLETE**



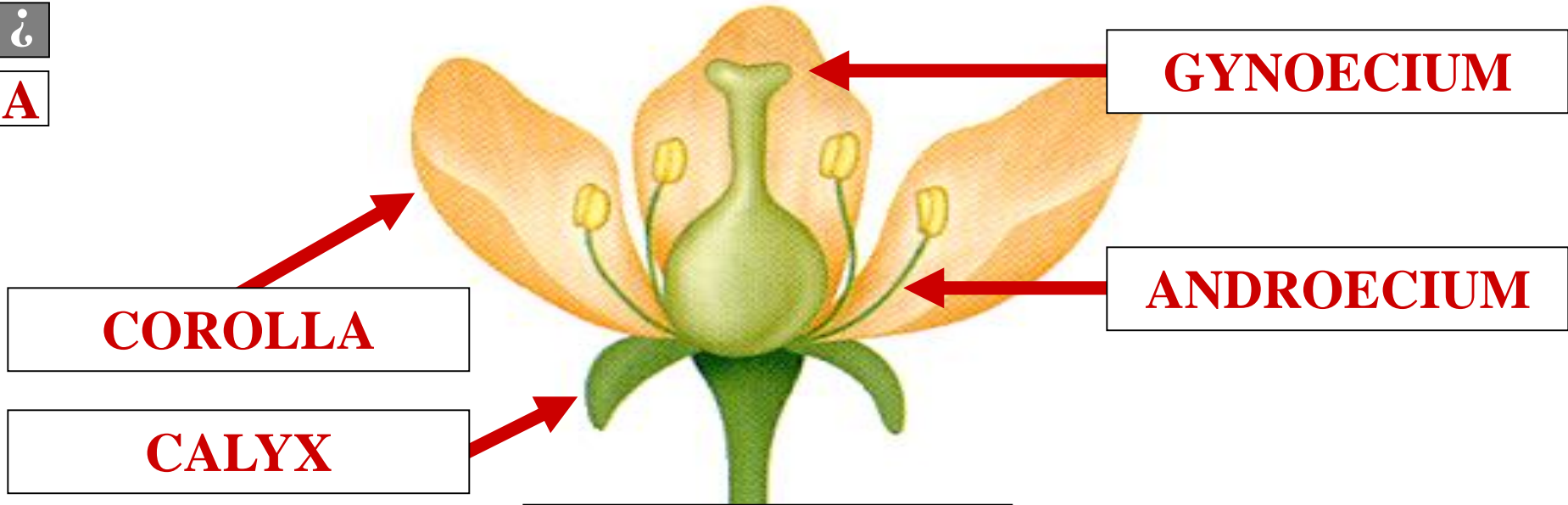
**INCOMPLETE**

^





**A**



**COROLLA**

**CALYX**

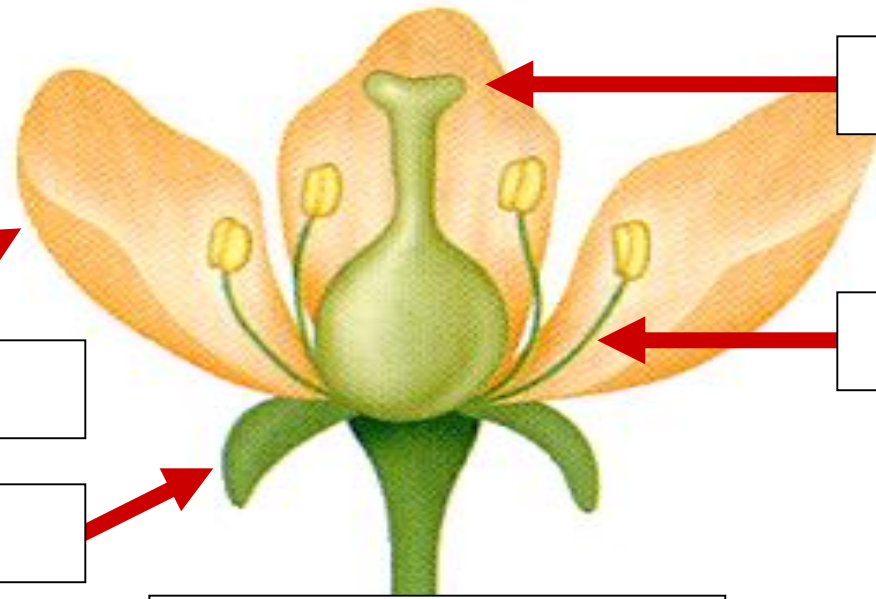
**GYNOECIUM**

**ANDROECIUM**

**COMPLETE**



**INCOMPLETE**



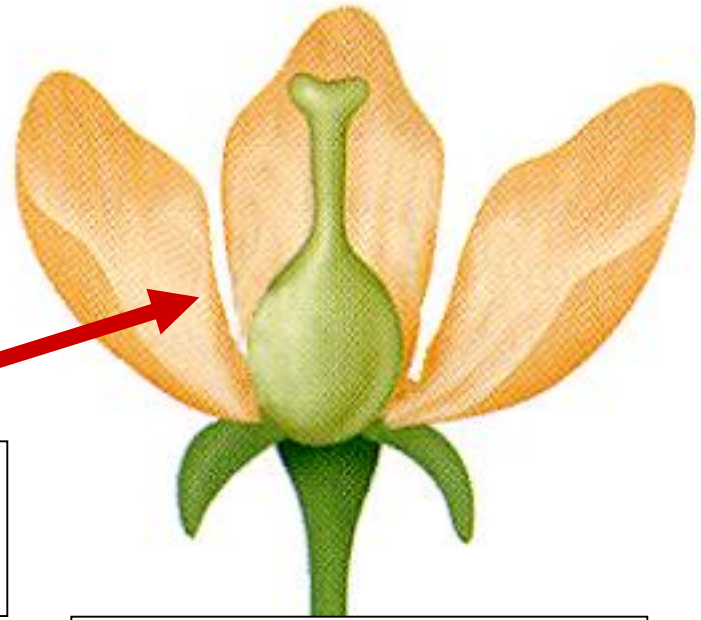
**GYNOECIUM**

**ANDROECIUM**

**COROLLA**

**CALYX**

**COMPLETE**



**ANDROECIUM  
ABSENT**

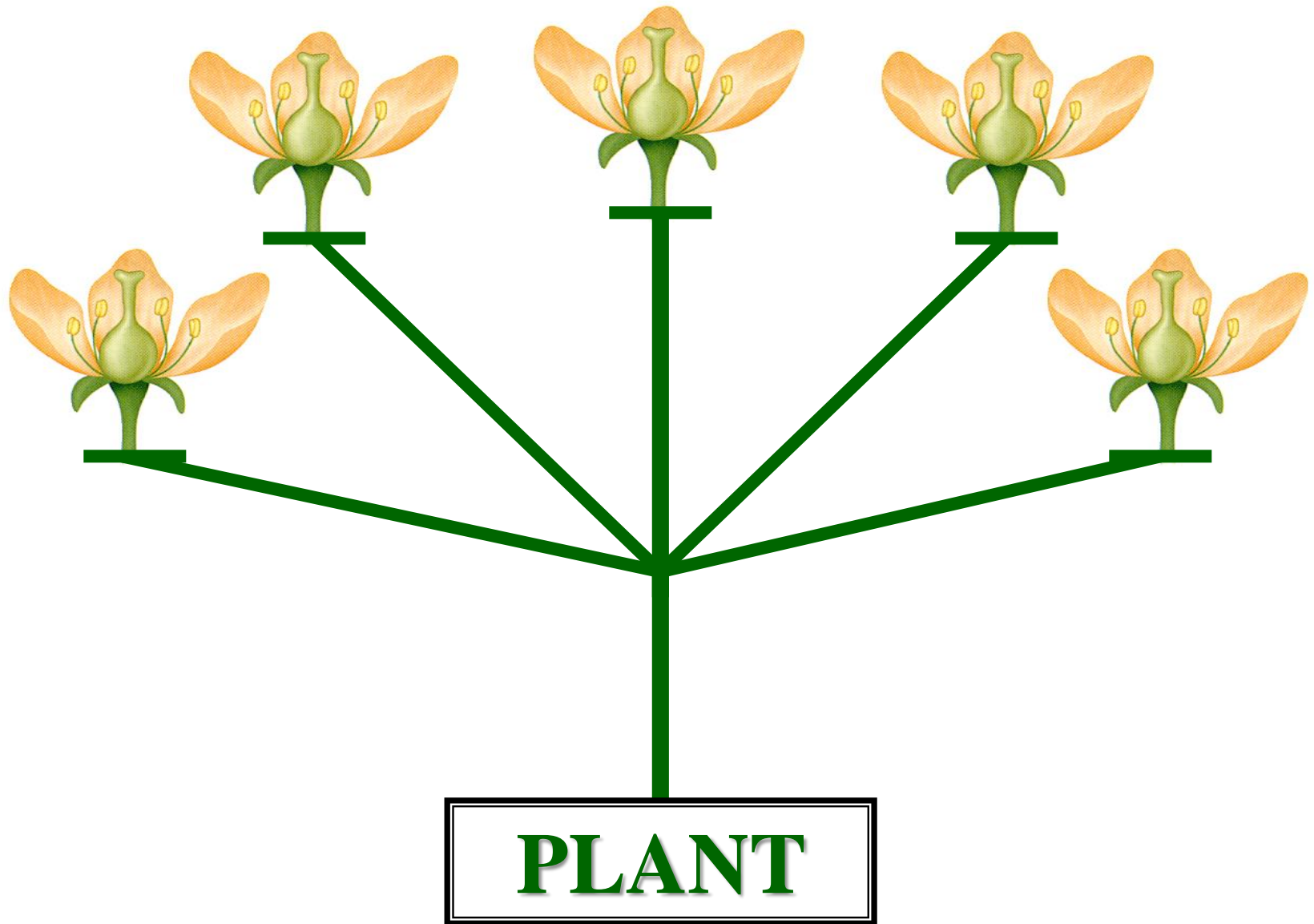
**INCOMPLETE**

# SEX CONDITION

**PERFECT  
FLOWER  
VS  
IMPERFECT  
FLOWER**

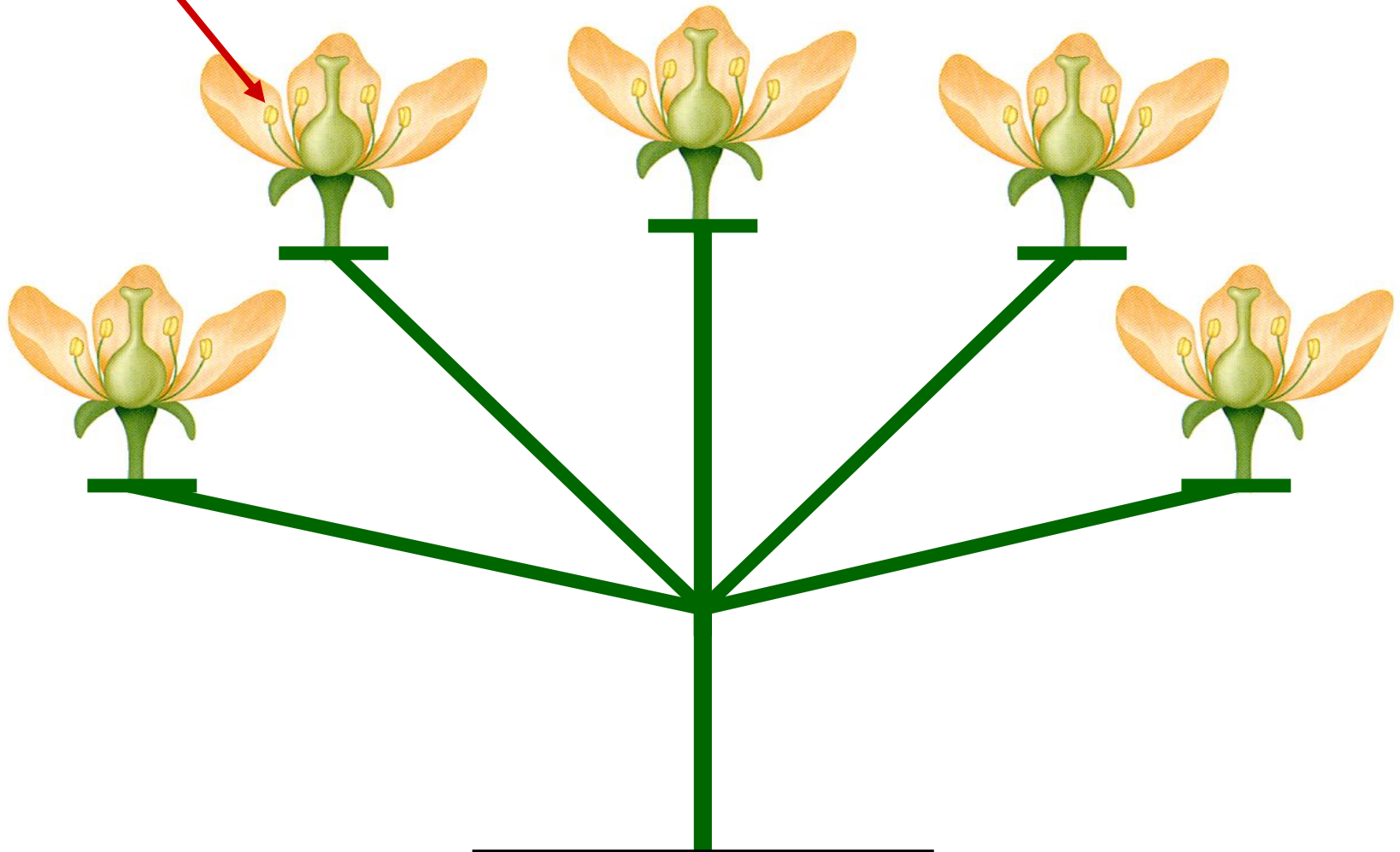


# PERFECT FLOWER





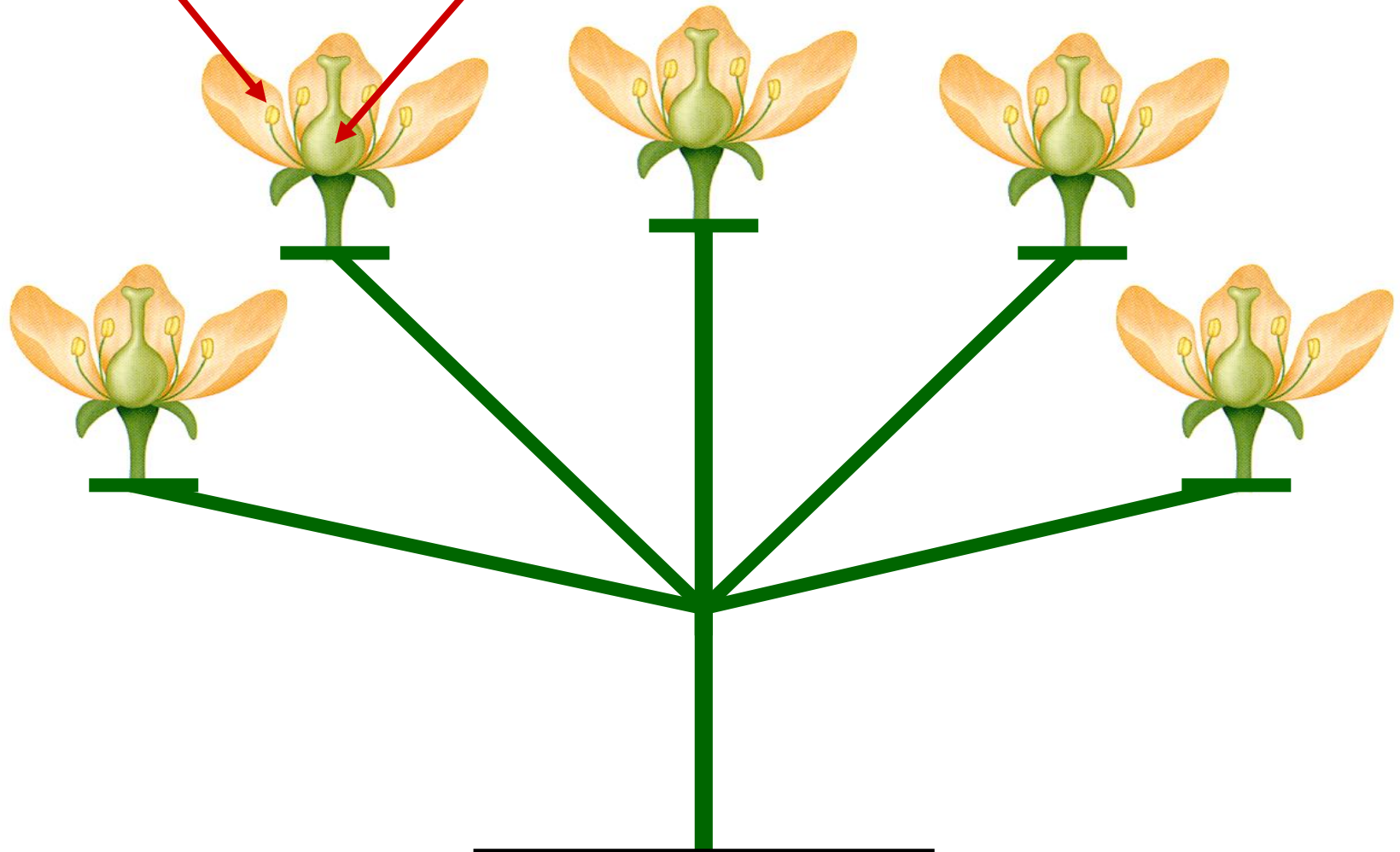
**ANDROECIUM**



**PLANT**

**ANDROECIUM**

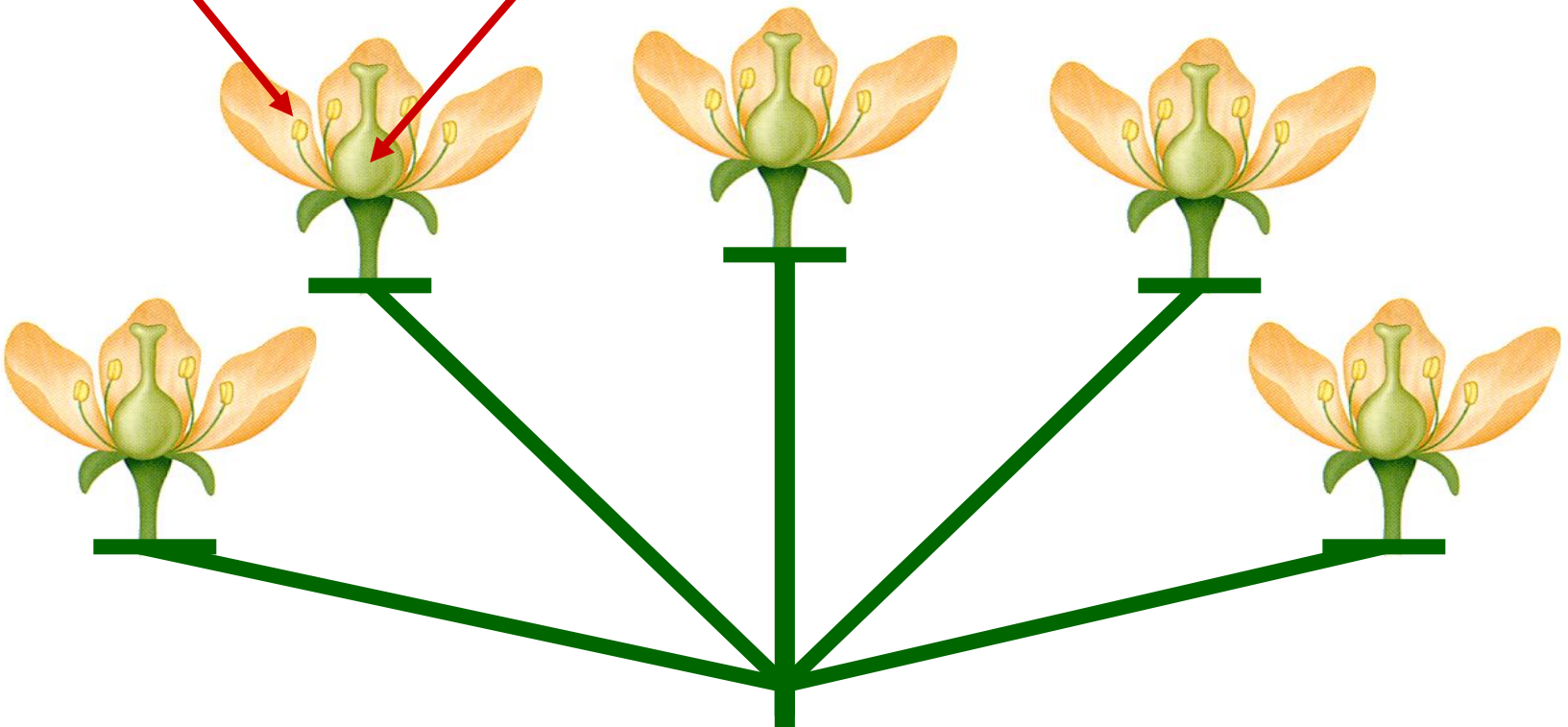
**GYNOECIUM**



**PLANT**

**ANDROECIUM**

**GYNOECIUM**

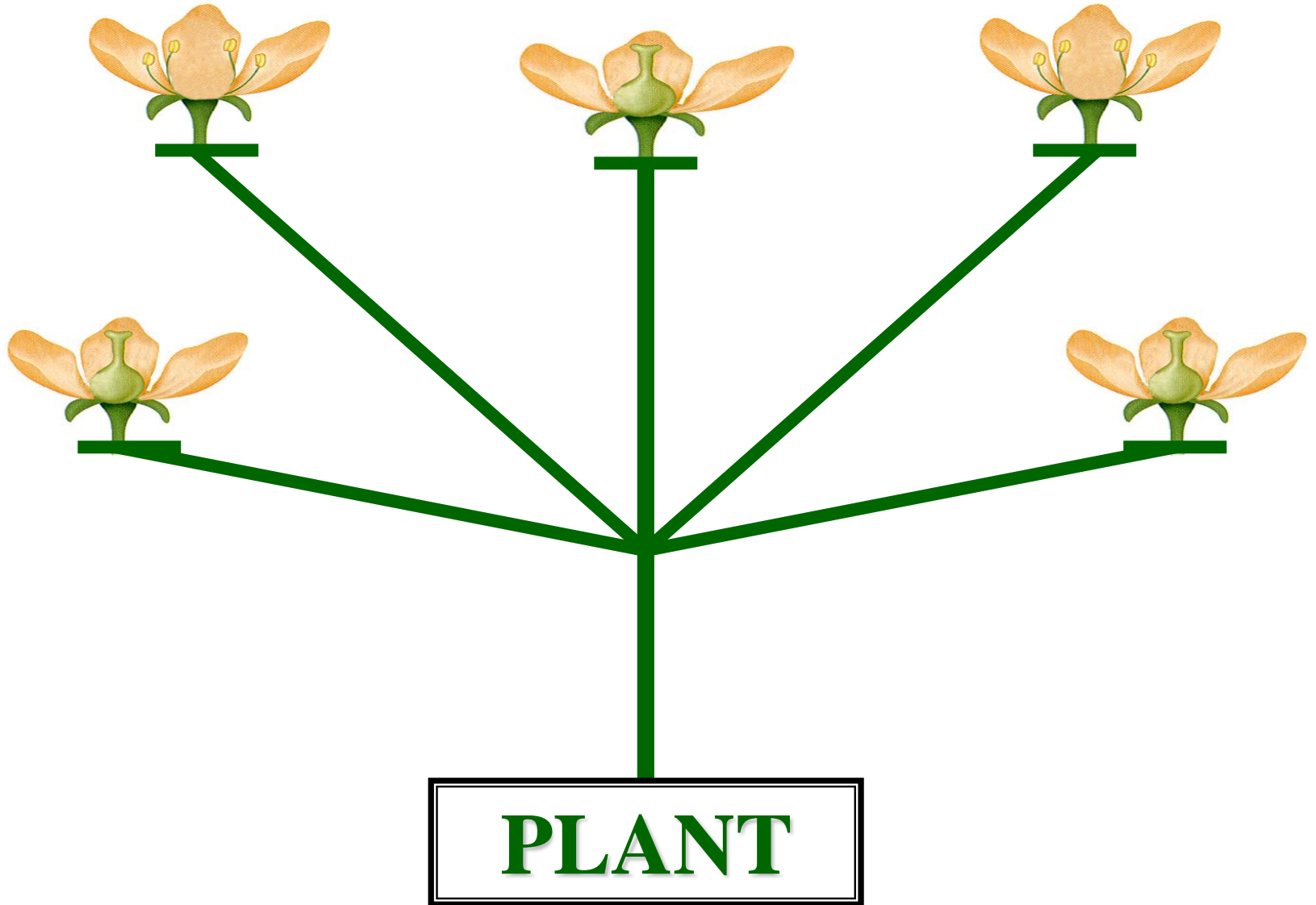


**PERFECT  
FLOWERS**

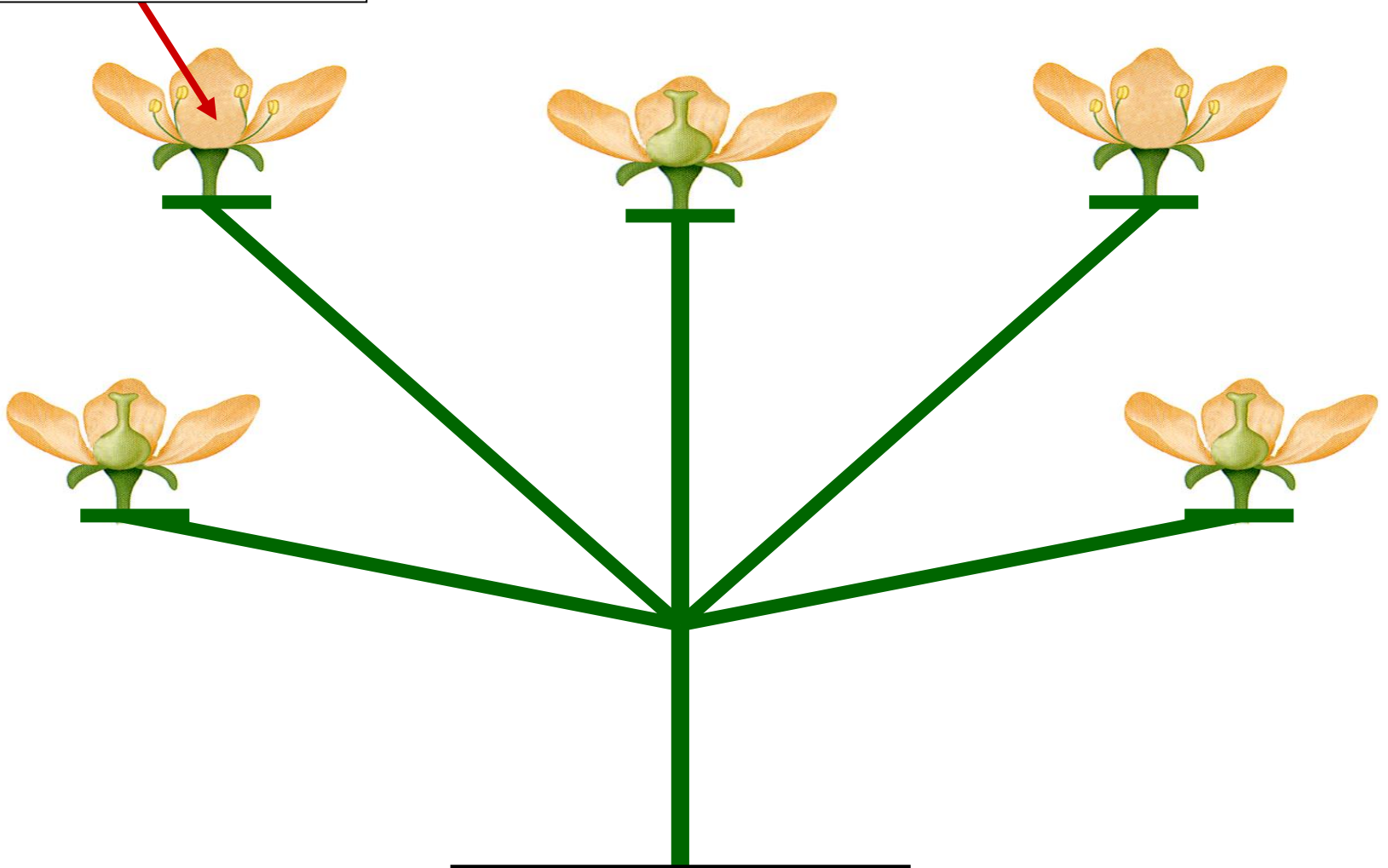
**PLANT**



# IMPERFECT FLOWER



**GYNOECIUM  
ABSENT**



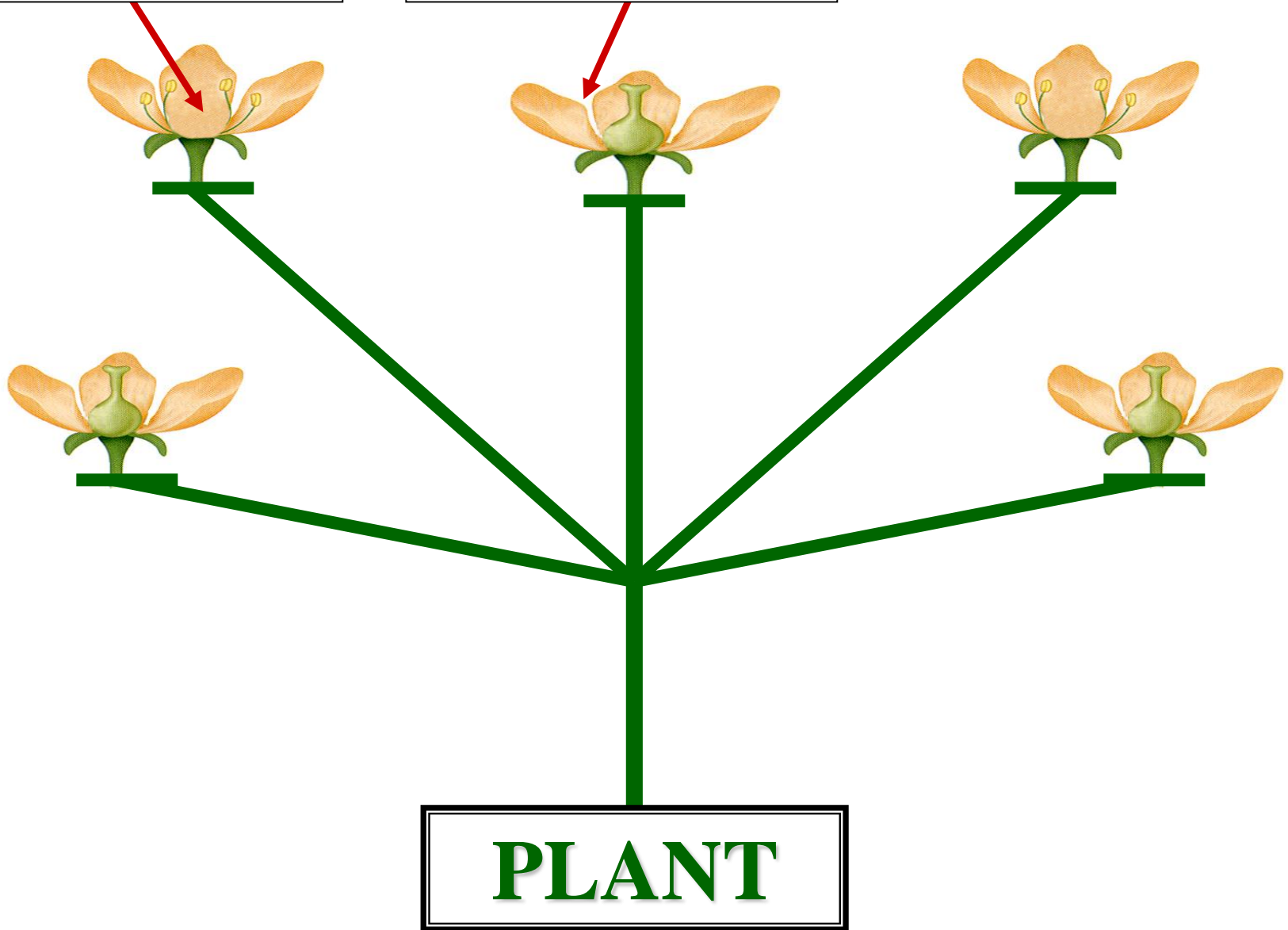
**PLANT**

**GYNOECIUM  
ABSENT**

**ANDROECIUM  
ABSENT**

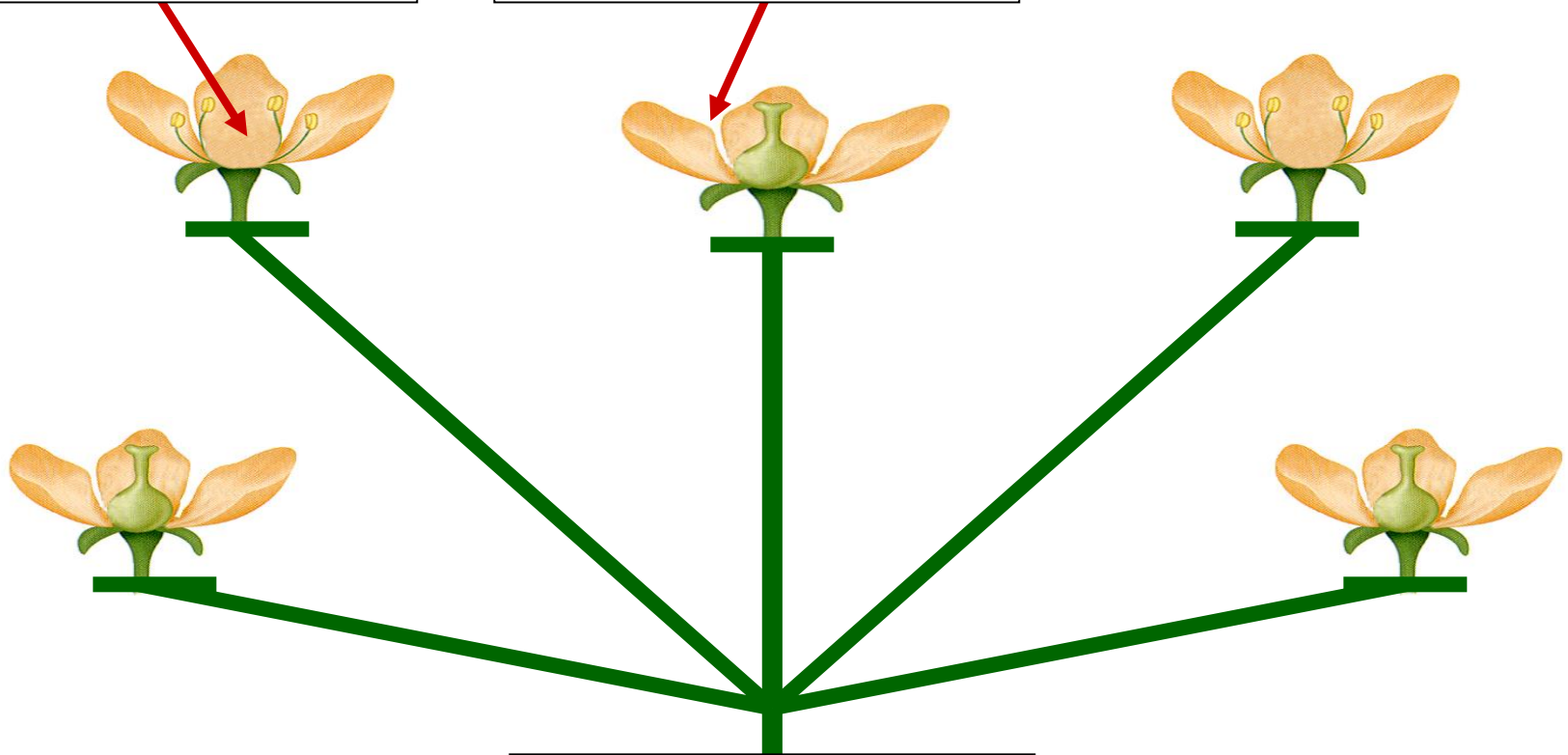
**IF**

**+**



**GYNOECIUM  
ABSENT**

**ANDROECIUM  
ABSENT**



**IMPERFECT  
FLOWERS**

**PLANT**



**MONOECIOUS**

**VS**

**DIOECIOUS**

**VS**

**POLYGAMOUS**

# MONOECECIOUS PLANT

# **DIOECIOUS PLANT**

# POLYGAMOUS PLANT

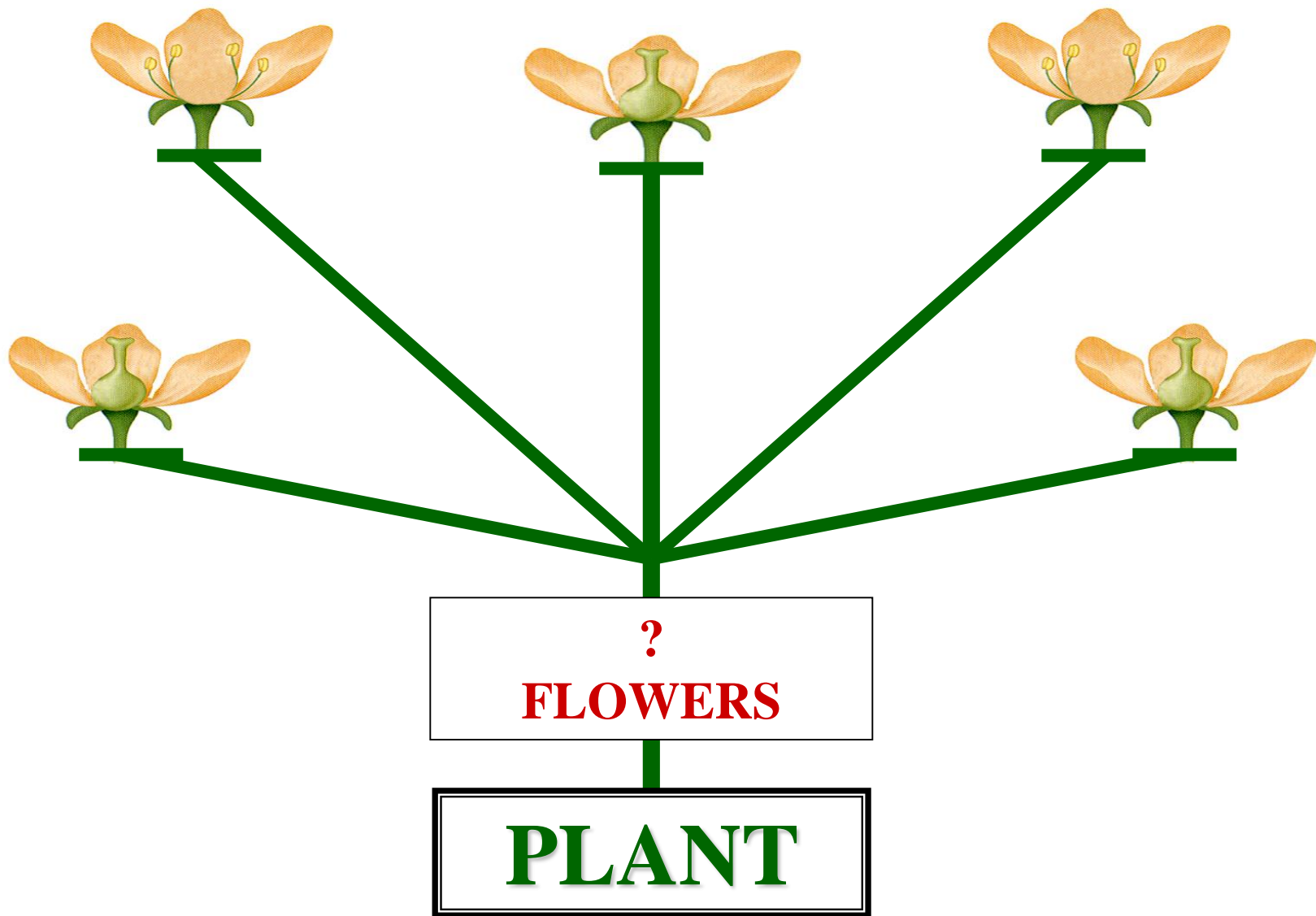


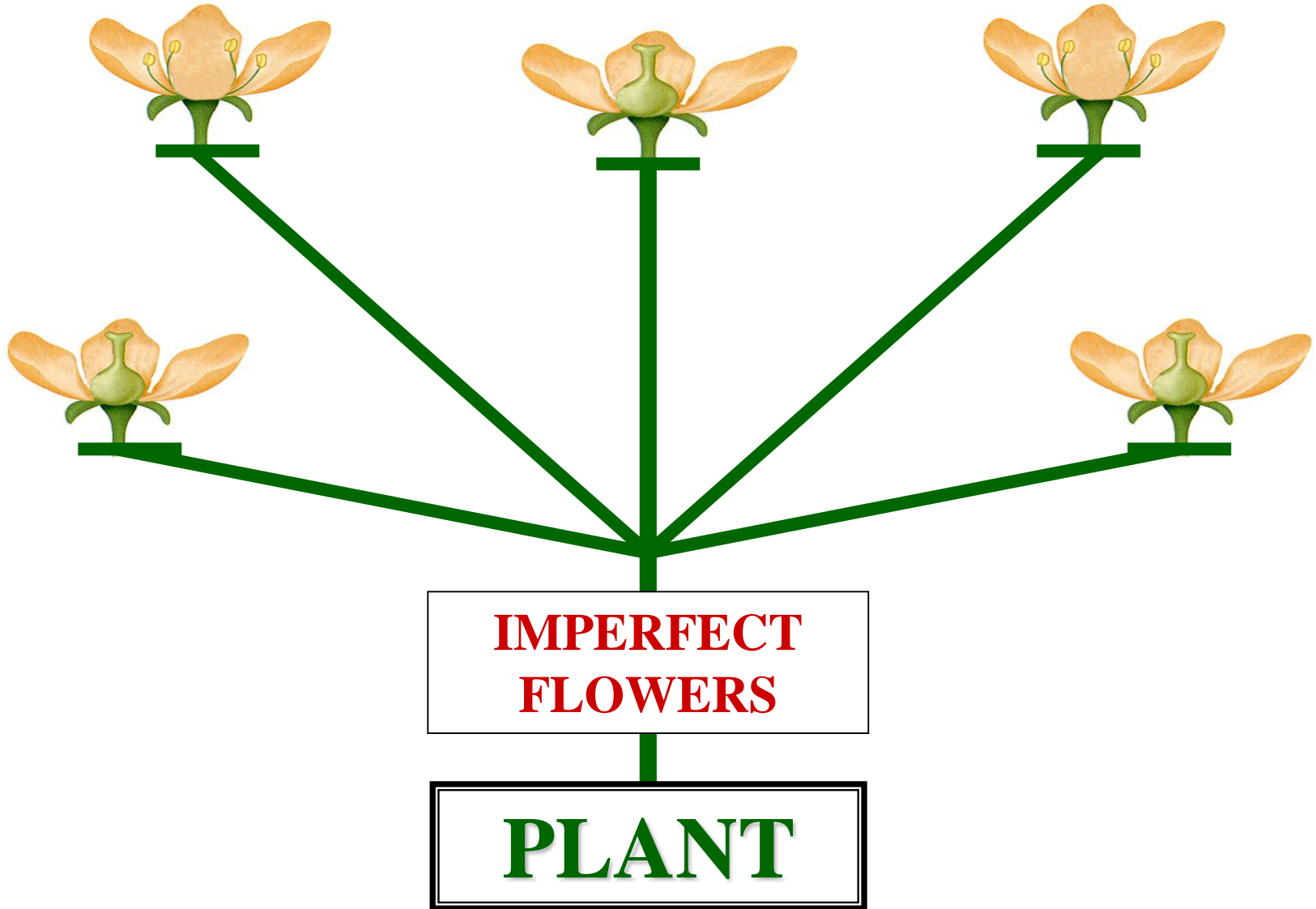
**MONOECIOUS**

**DIOECIOUS**

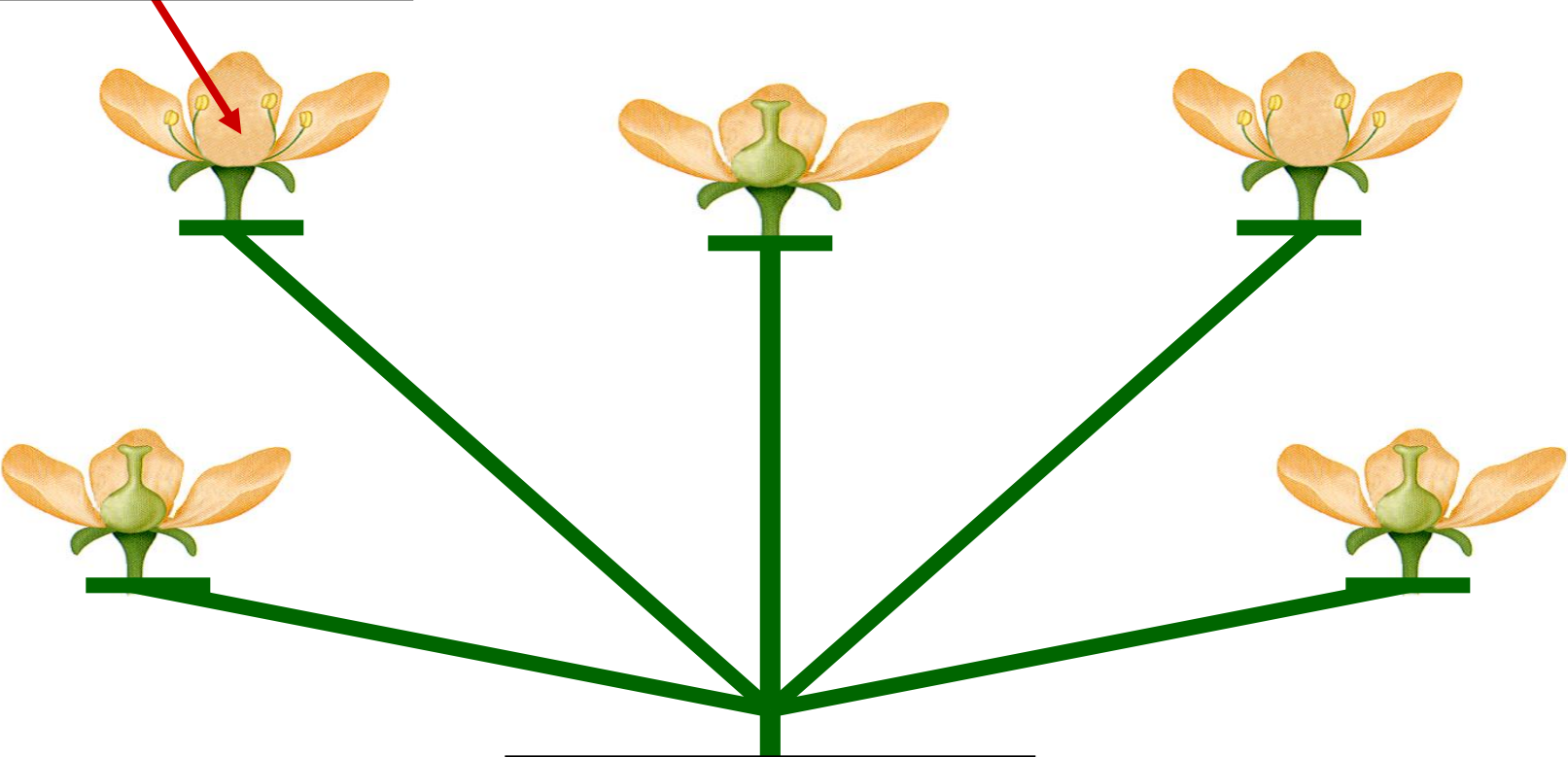
**POLYGAMOUS**

**APPLIED**





**STAMINATE  
FLOWER**



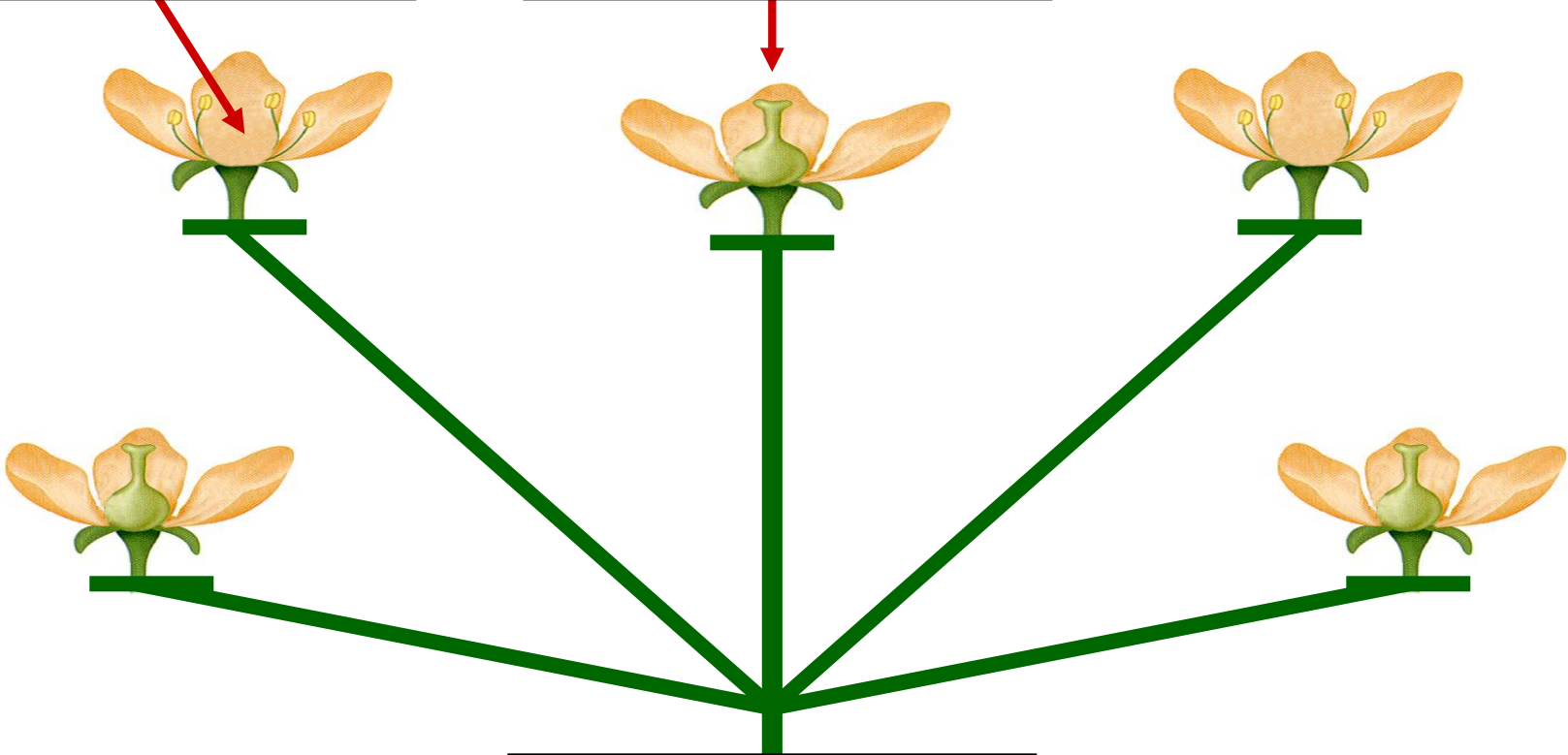
**IMPERFECT  
FLOWERS**

**PLANT**



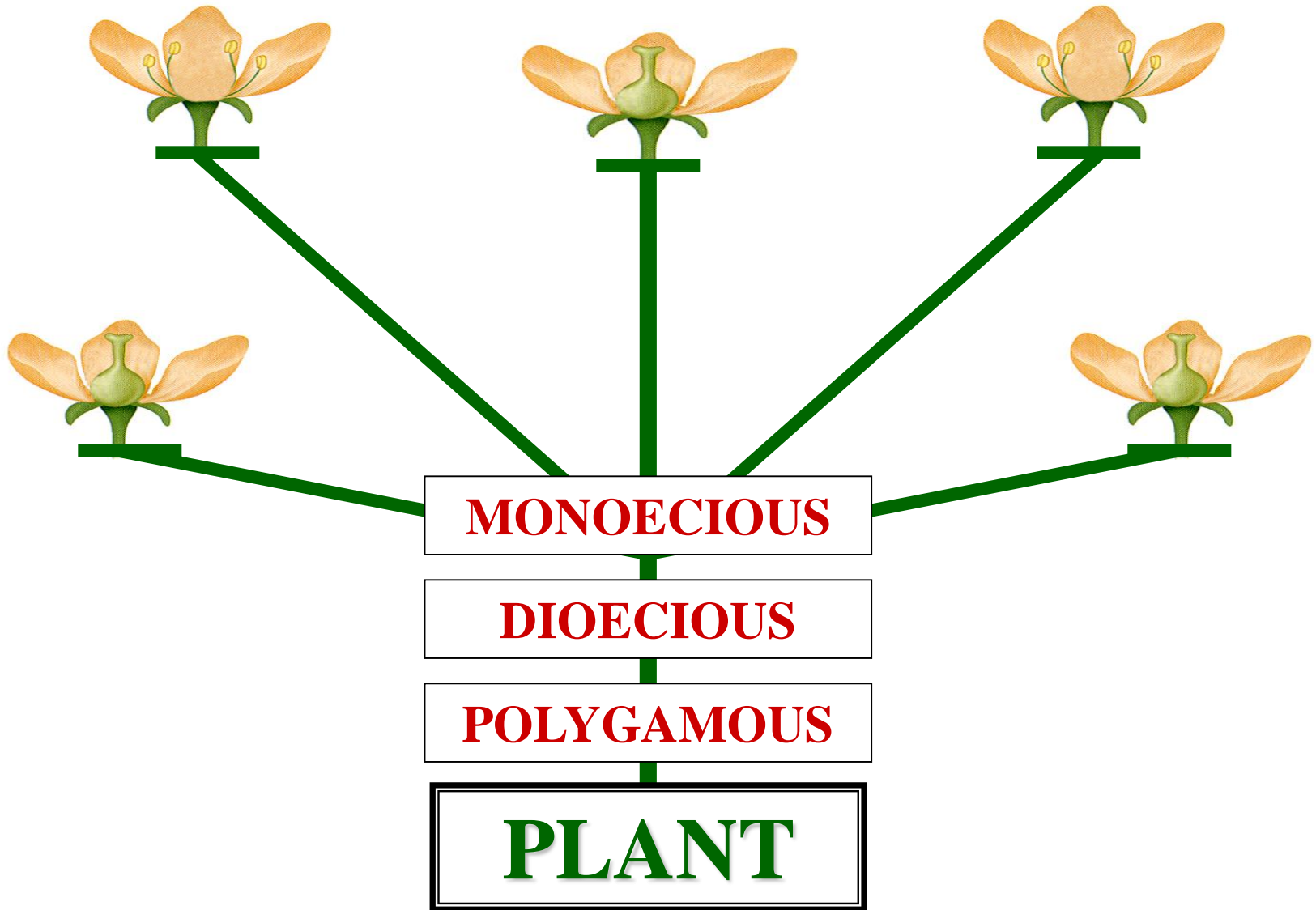
**STAMINATE  
FLOWER**

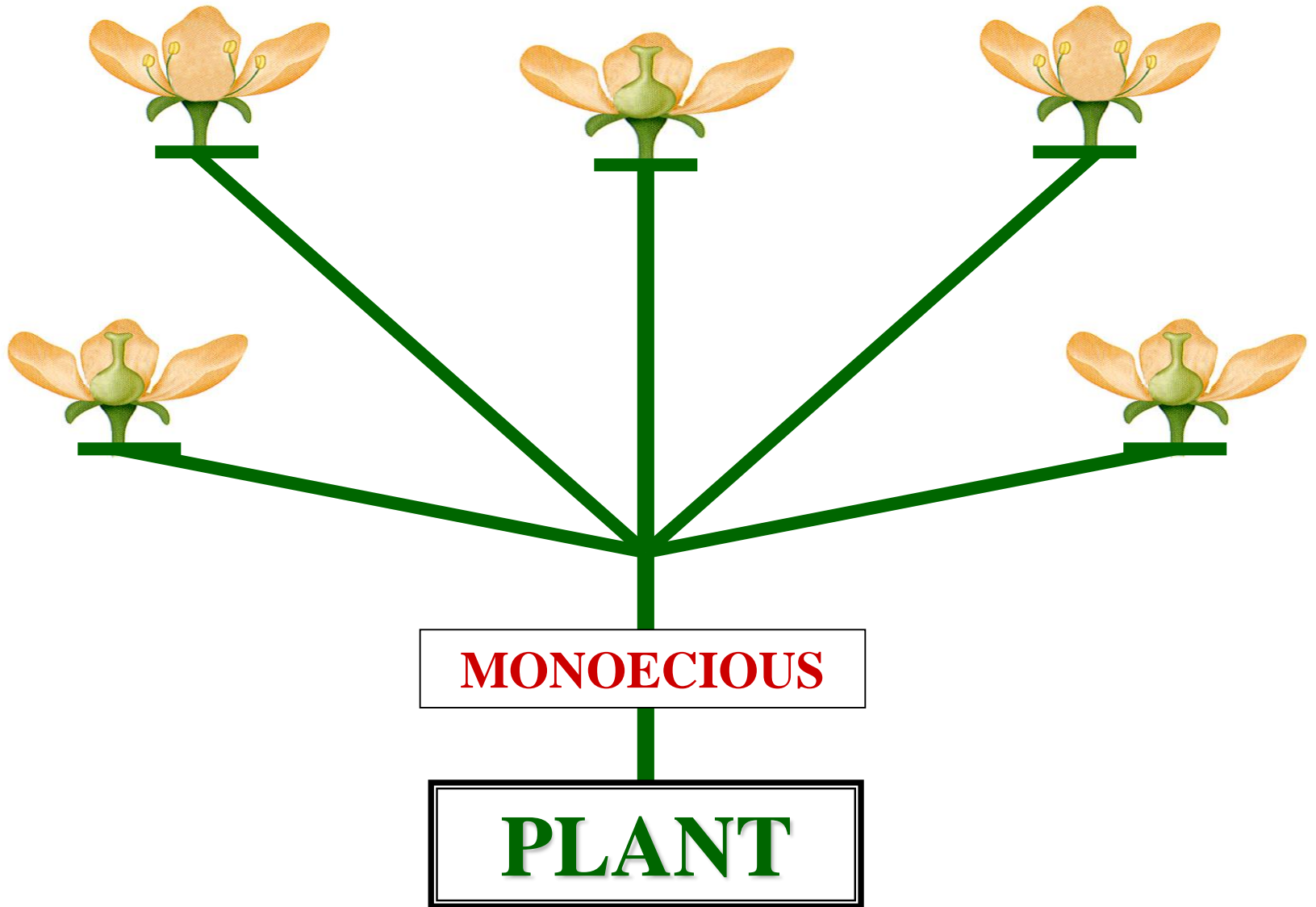
**PISTILATE  
FLOWER**



**IMPERFECT  
FLOWERS**

**PLANT**





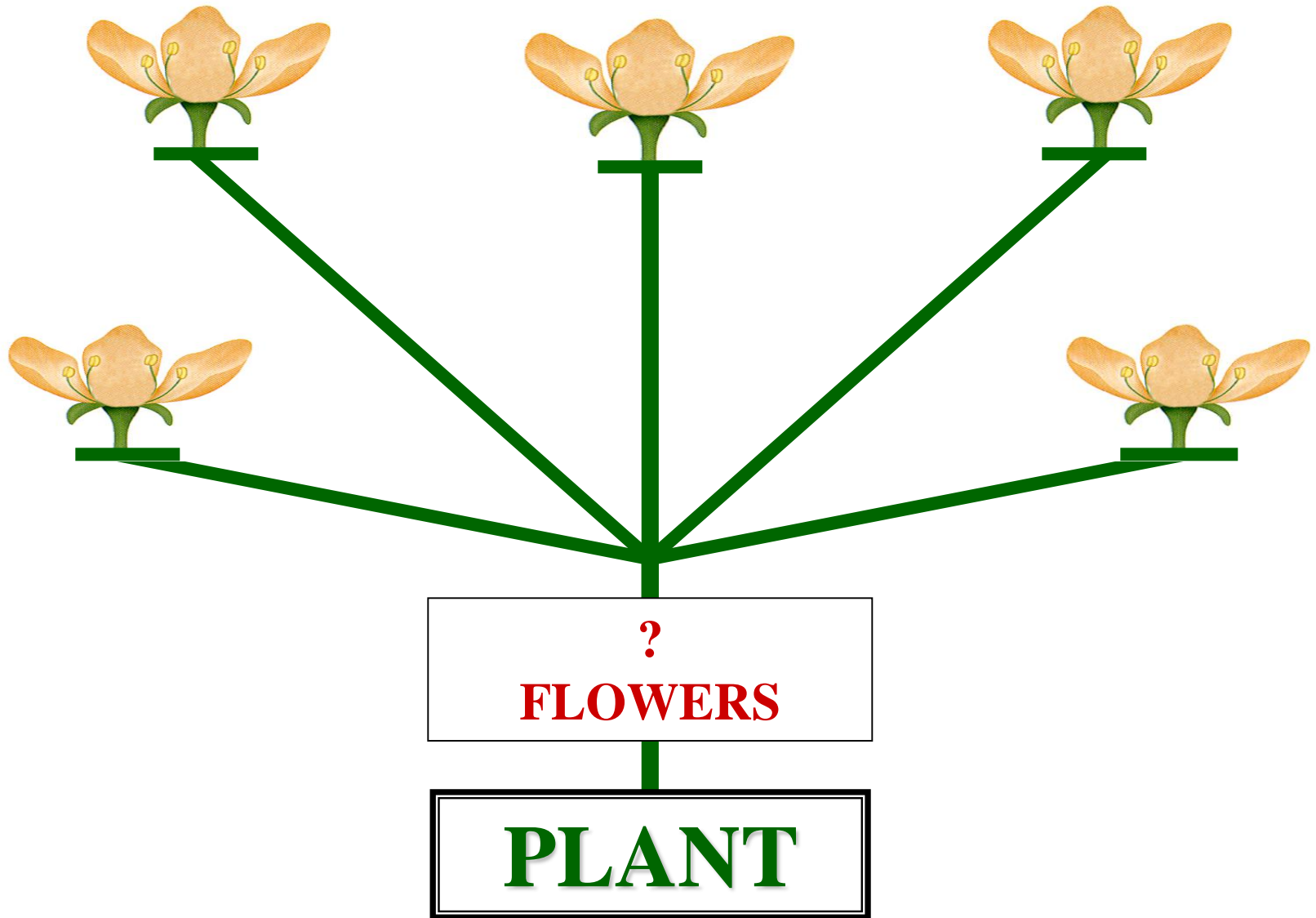


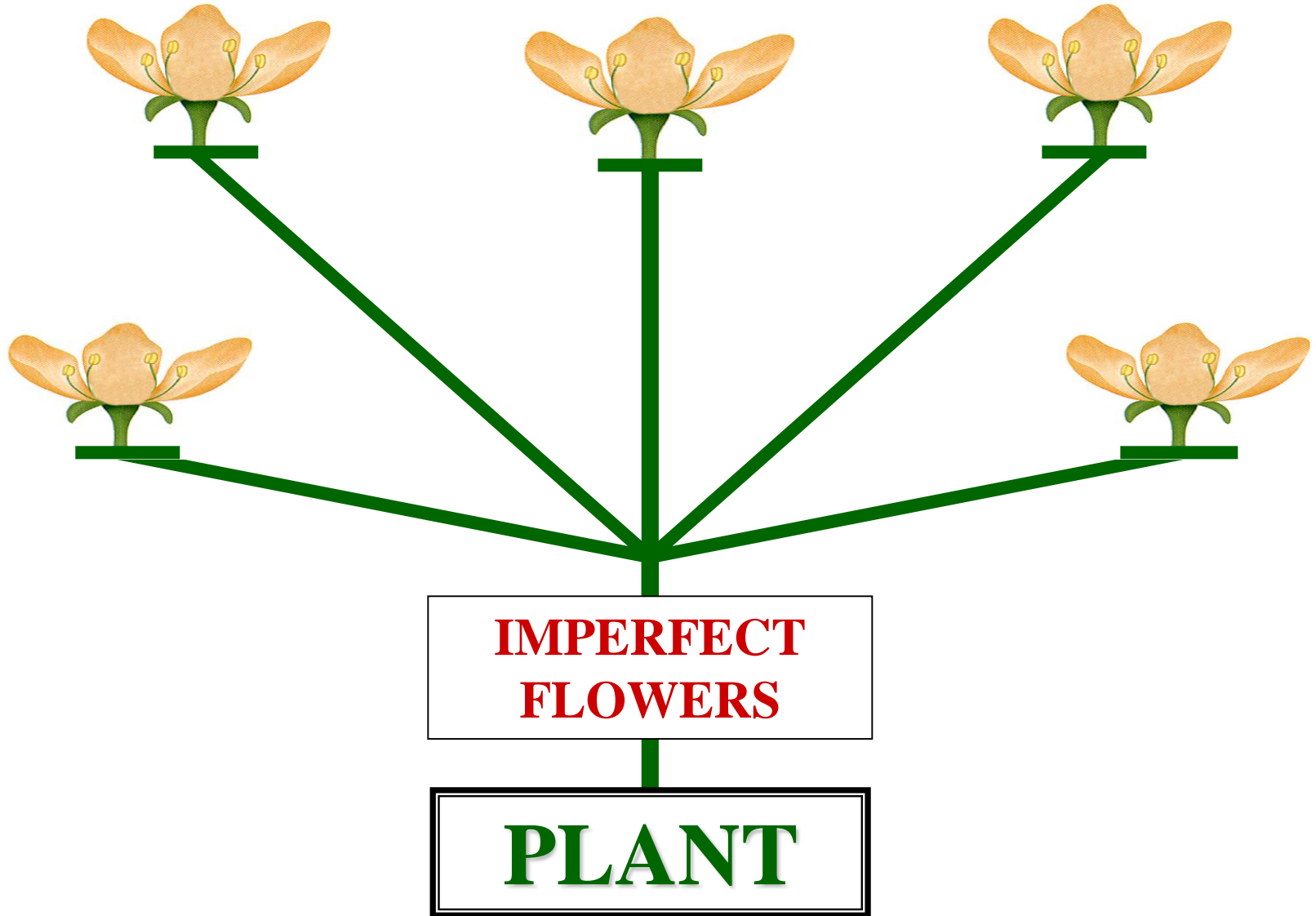
**MONOECIOUS**

**DIOECIOUS**

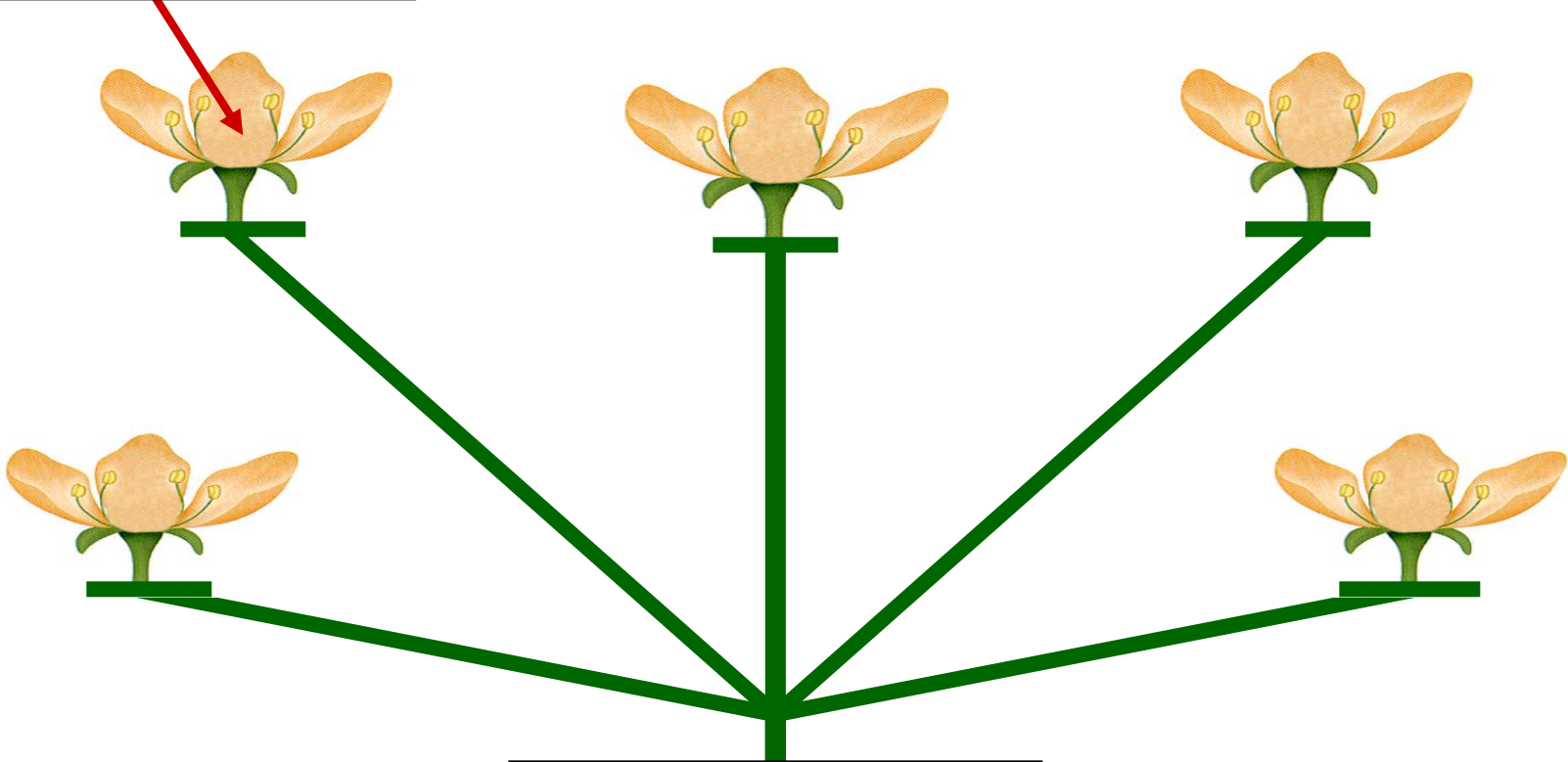
**POLYGAMOUS**

**APPLIED**





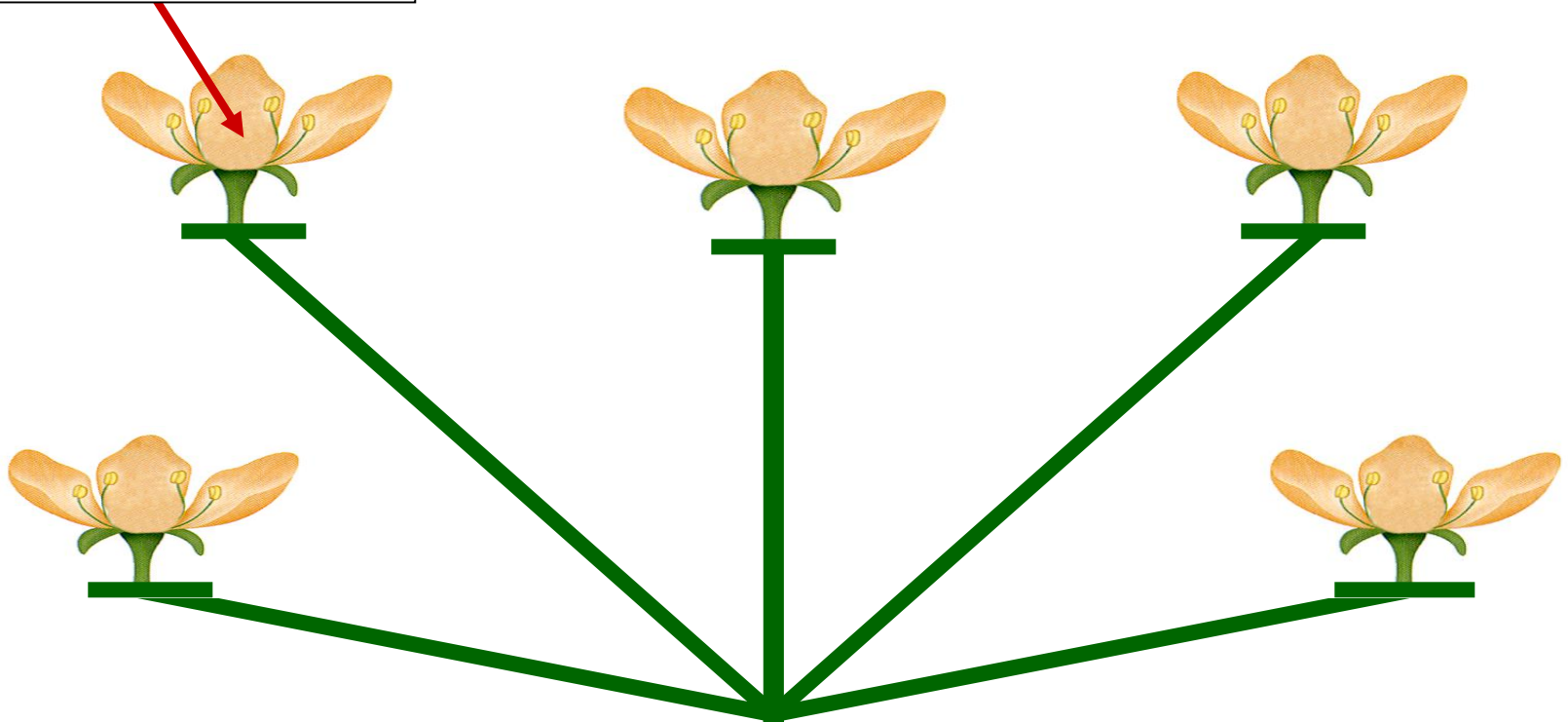
**STAMINATE  
FLOWER**



**IMPERFECT  
FLOWERS**

**PLANT**

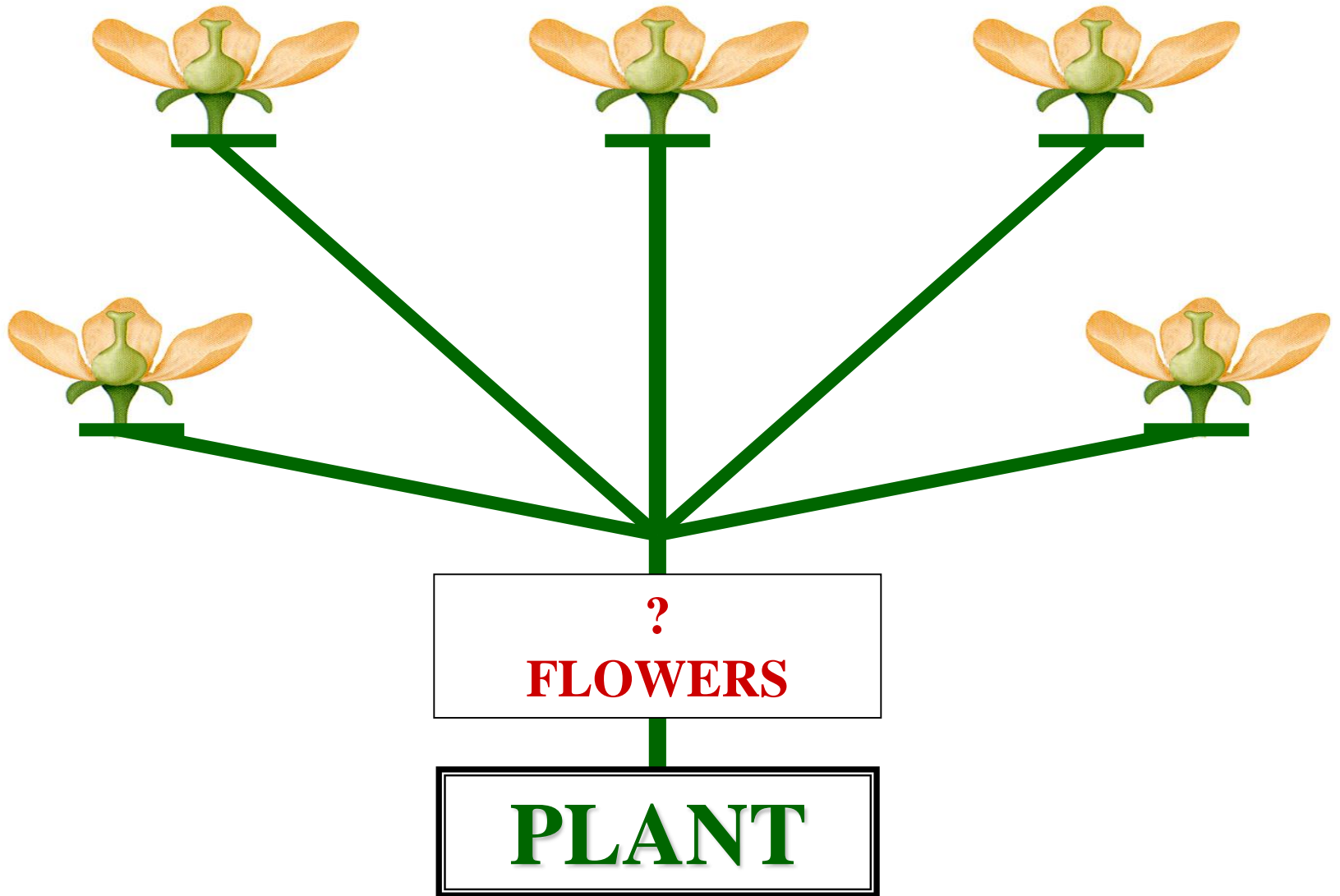
**STAMINATE  
FLOWER**

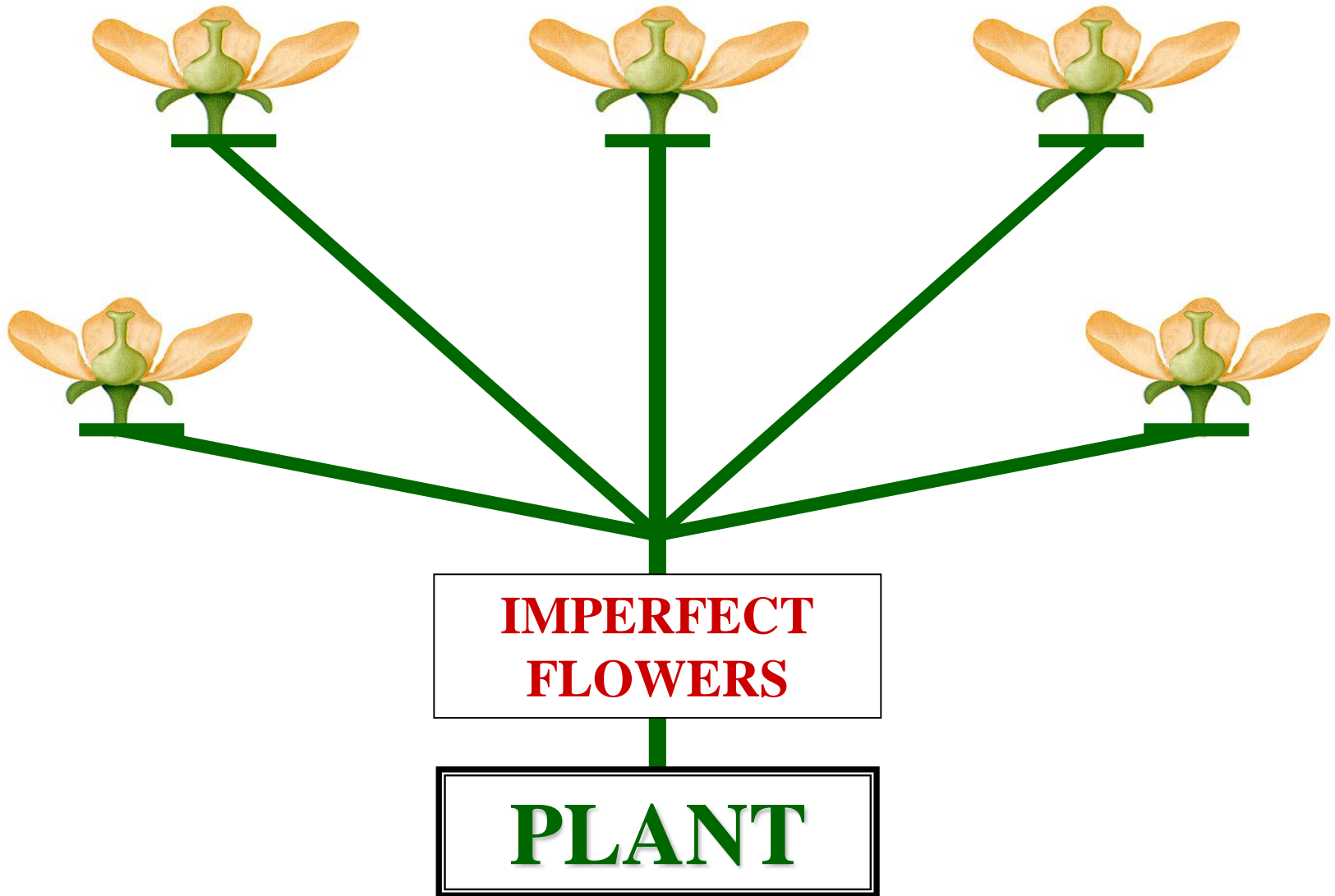


**STAMINATE PLANT**

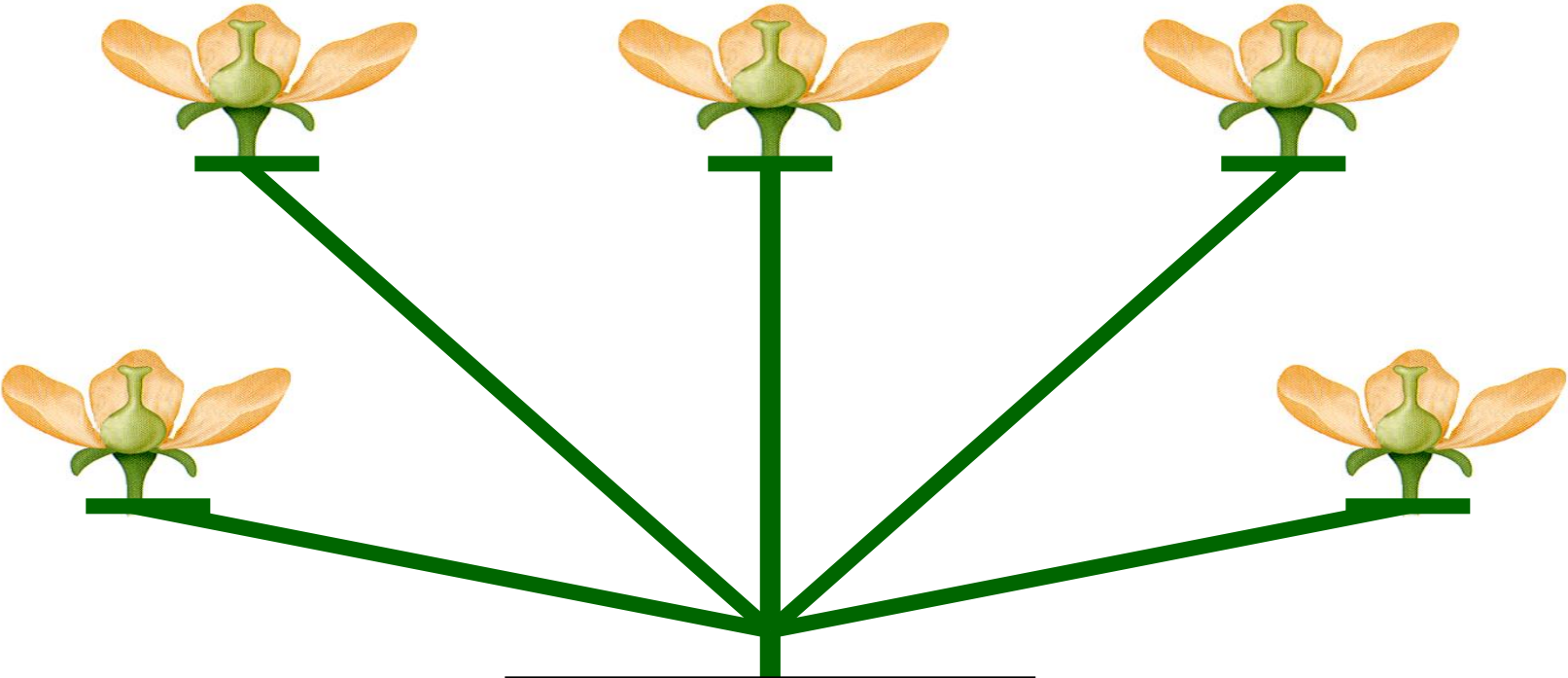
**PLANT**







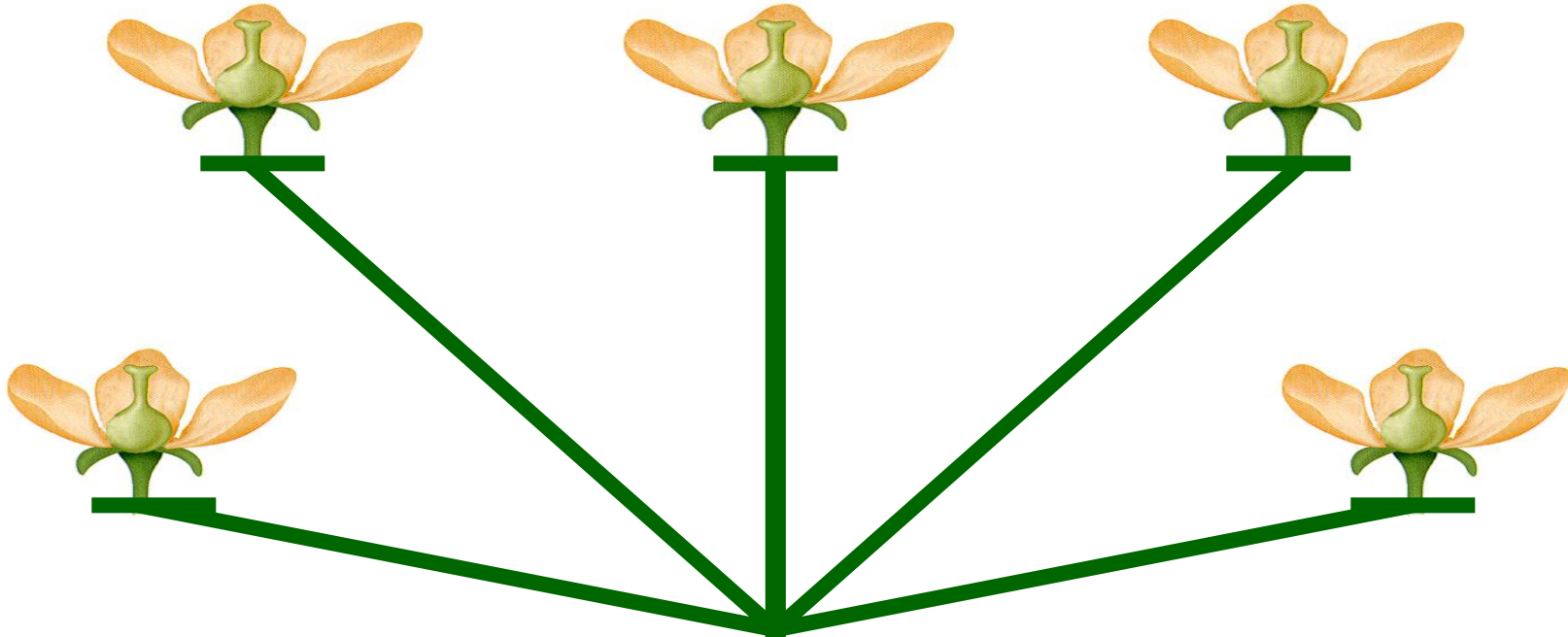
**PISTILATE  
FLOWER**



**IMPERFECT  
FLOWERS**

**PLANT**

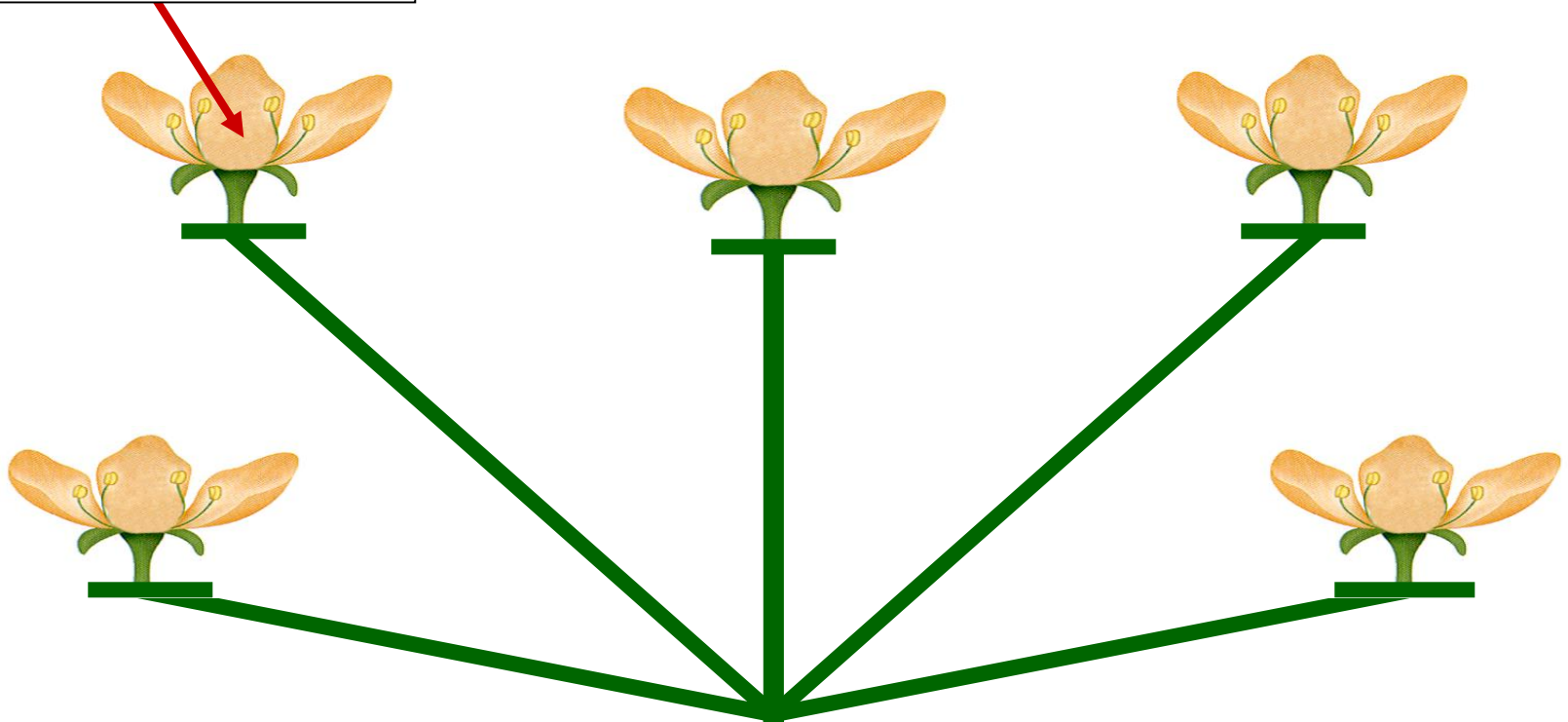
**PISTILATE  
FLOWER**



**PISTILATE PLANT**

**PLANT**

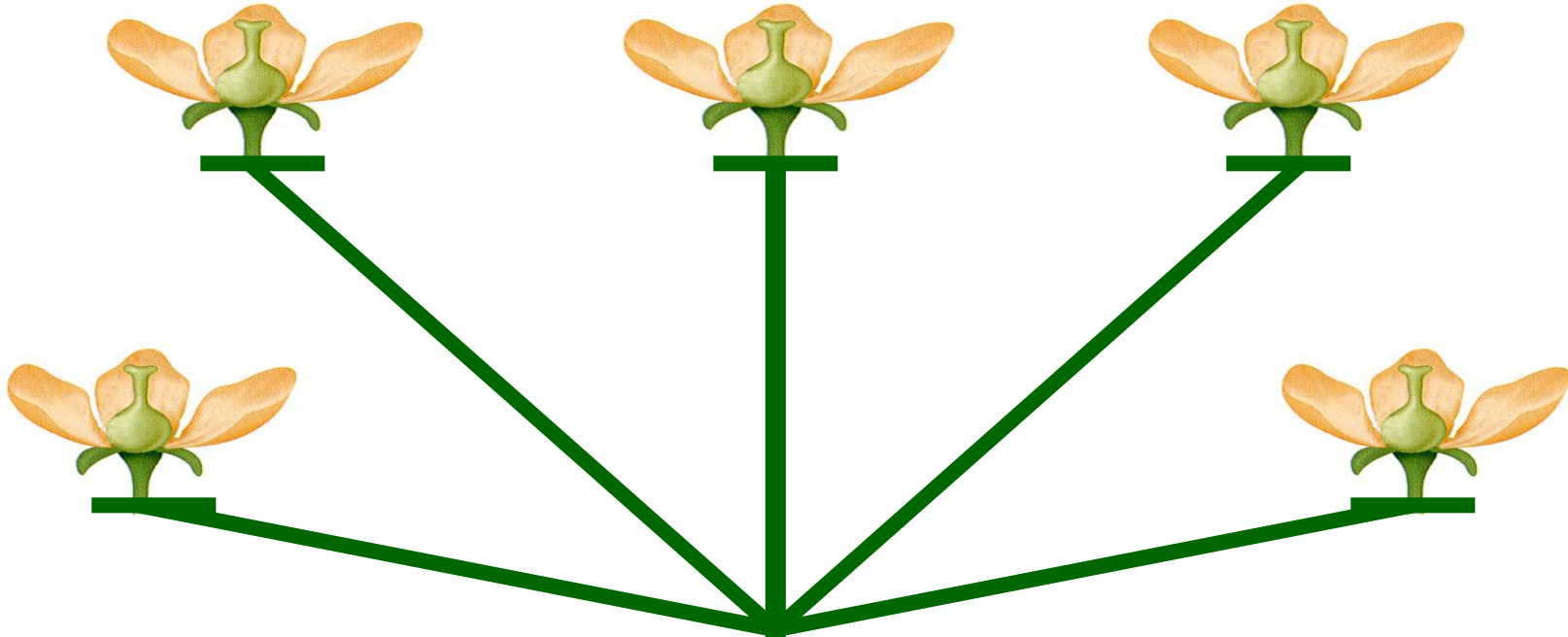
**STAMINATE  
FLOWER**



**STAMINATE PLANT**

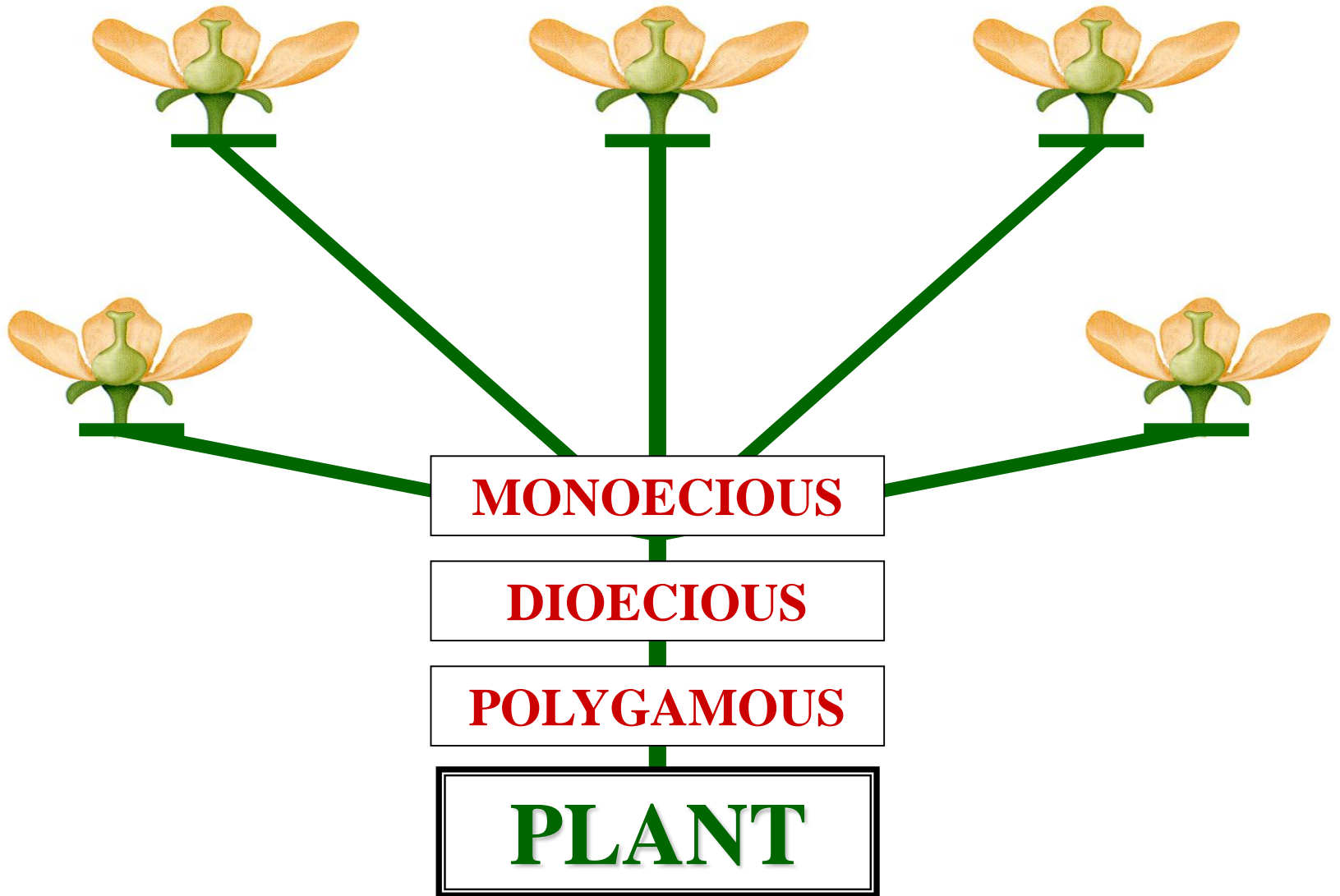
**PLANT**

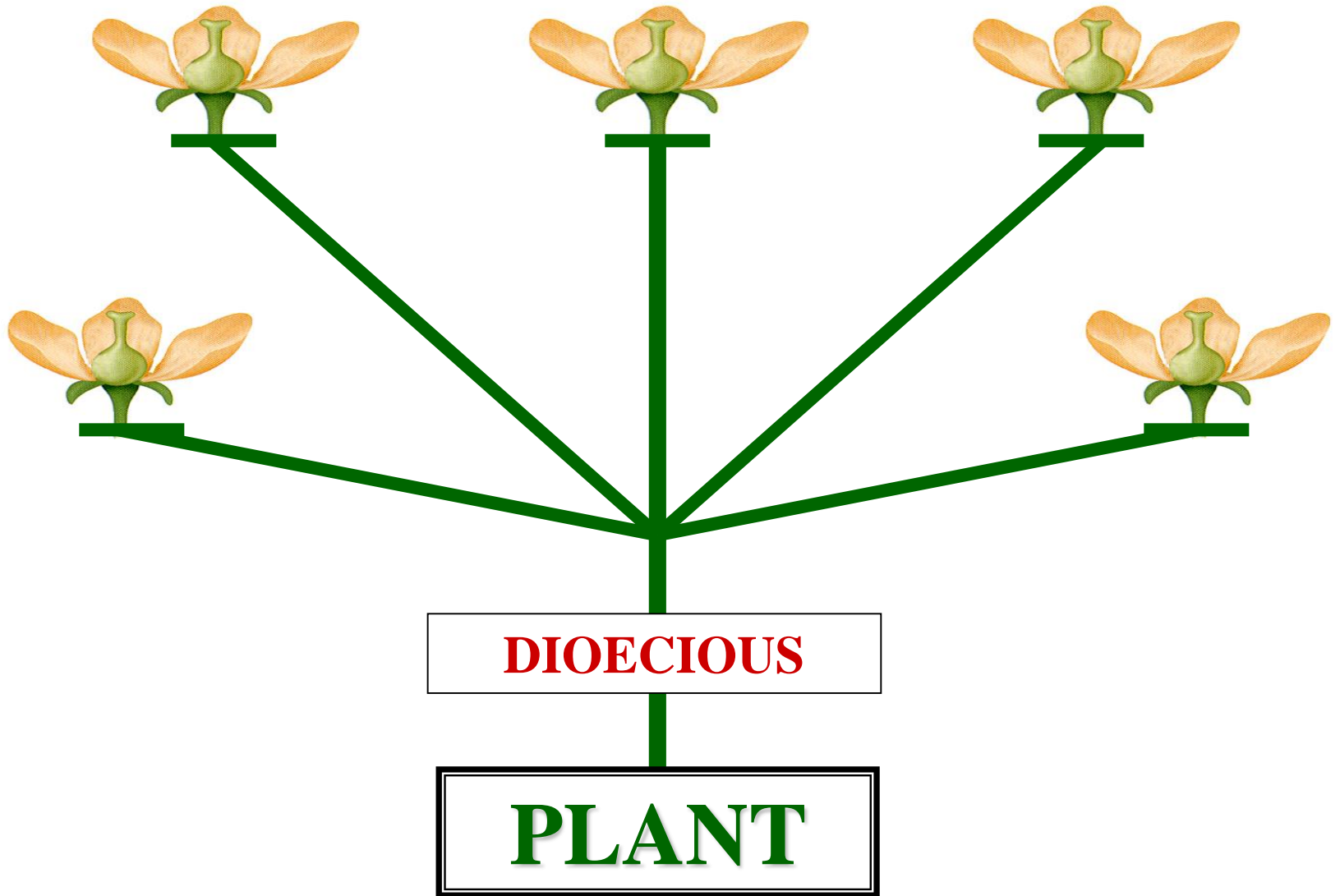
**PISTILATE  
FLOWER**



**PISTILATE PLANT**

**PLANT**







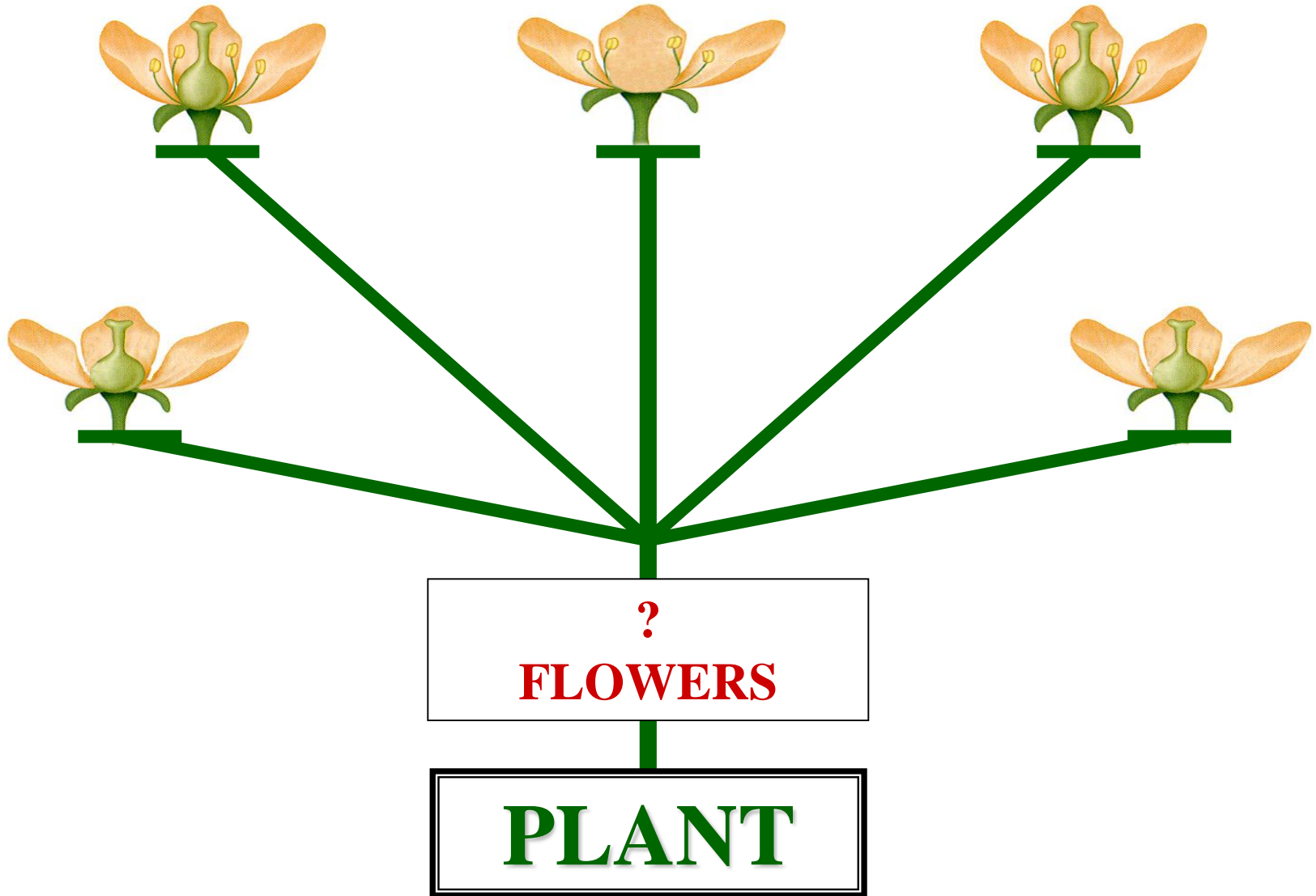


**MONOECIOUS**

**DIOECIOUS**

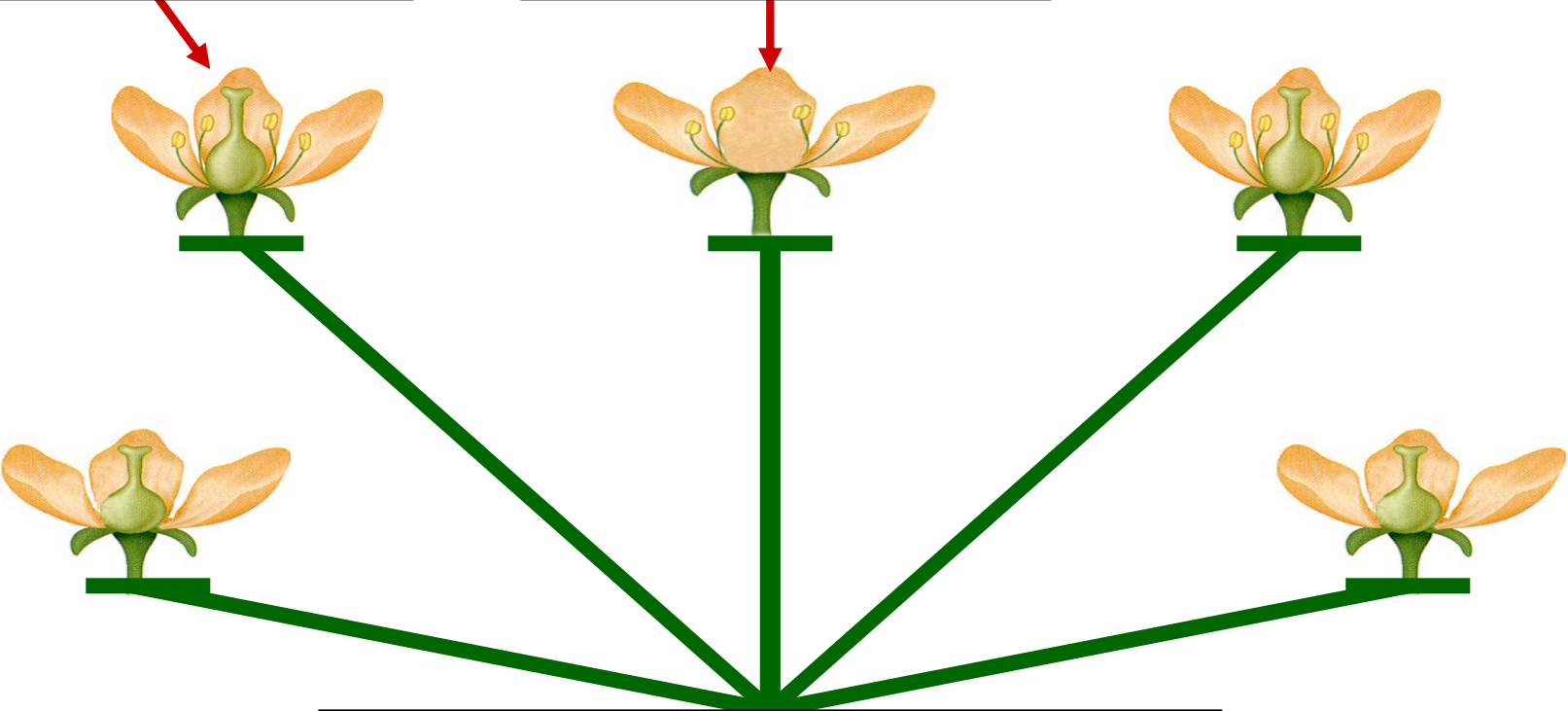
**POLYGAMOUS**

**APPLIED**



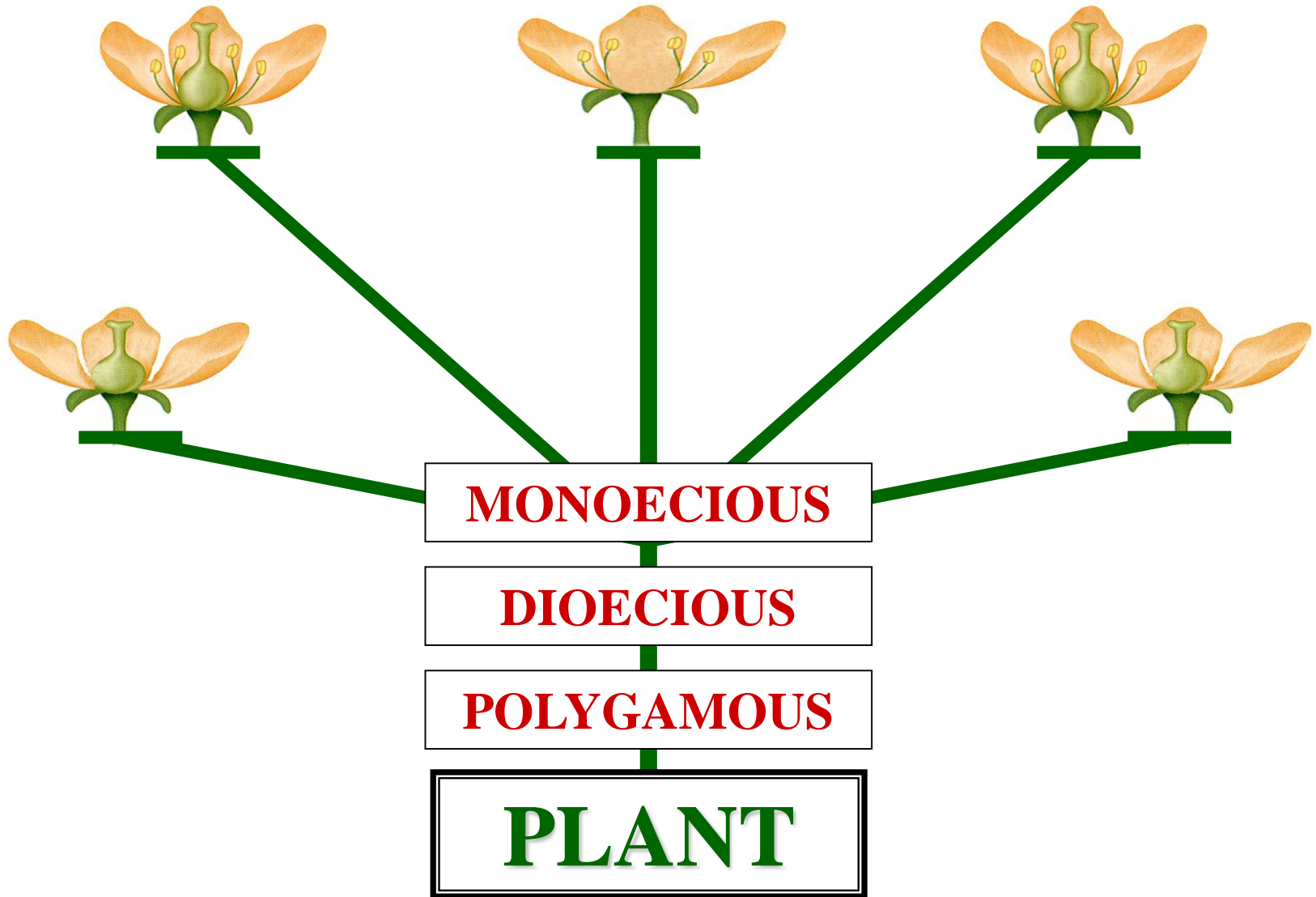
**PERFECT FLOWER**

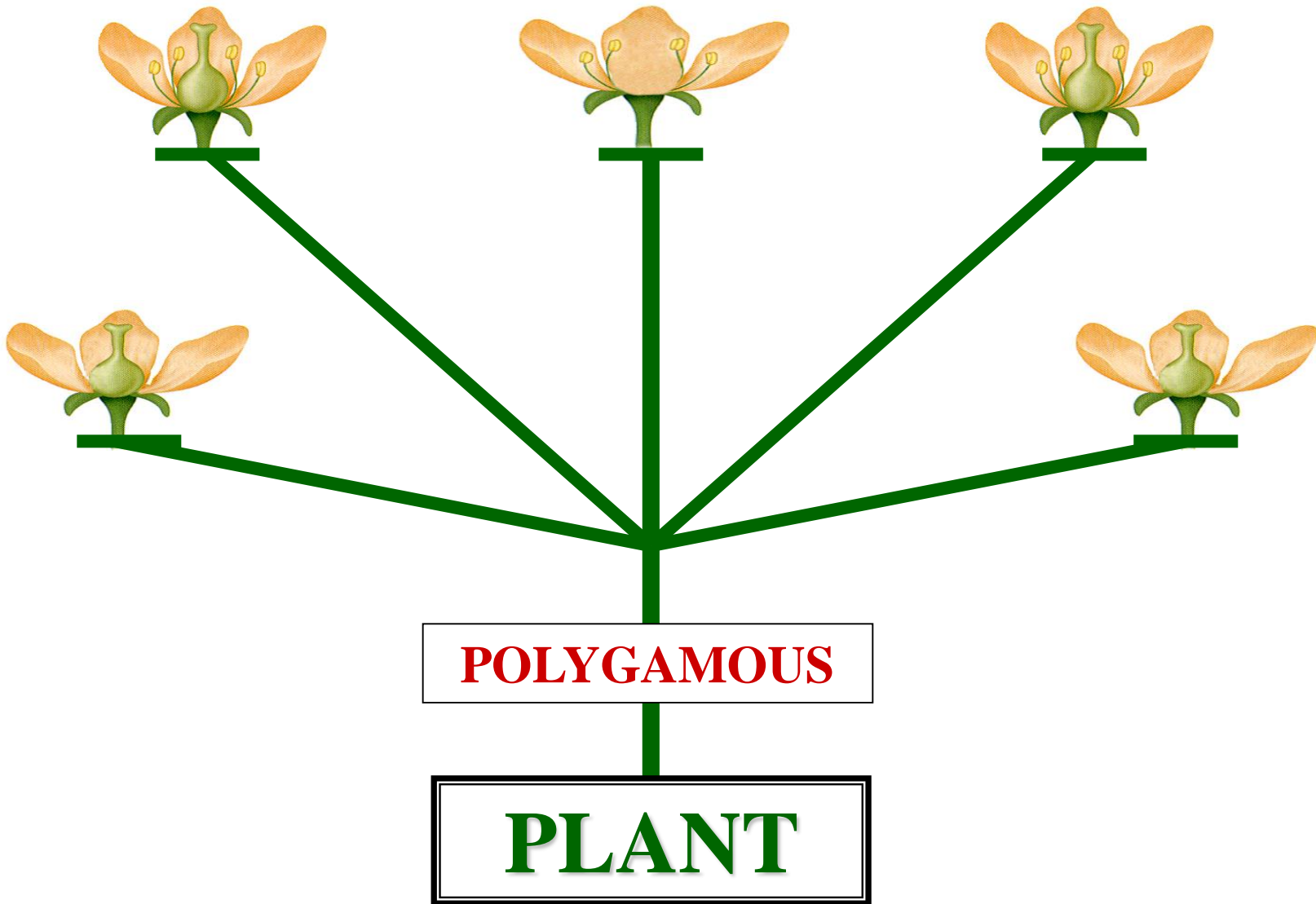
**IMPERFECT FLOWER**



**PERFECT FLOWERS  
&  
IMPERFECT FLOWERS**

**PLANT**





**POLYGAMOUS**

**PLANT**



**ATTENTION STUDENTS** 



**REQUIRED MATERIAL**

**LAB EXAM #5**

**&**

**FINAL EXAM**



**ATTENTION STUDENTS**



**POWERPOINT SLIDES  
WILL BE POSTED  
ASAP**













**ATTENTION STUDENTS**



***!!!BREAK!!!***

***!!!10 MINUTES!!!***



**ATTENTION STUDENTS**



**!!!TAKE NOTES!!!**

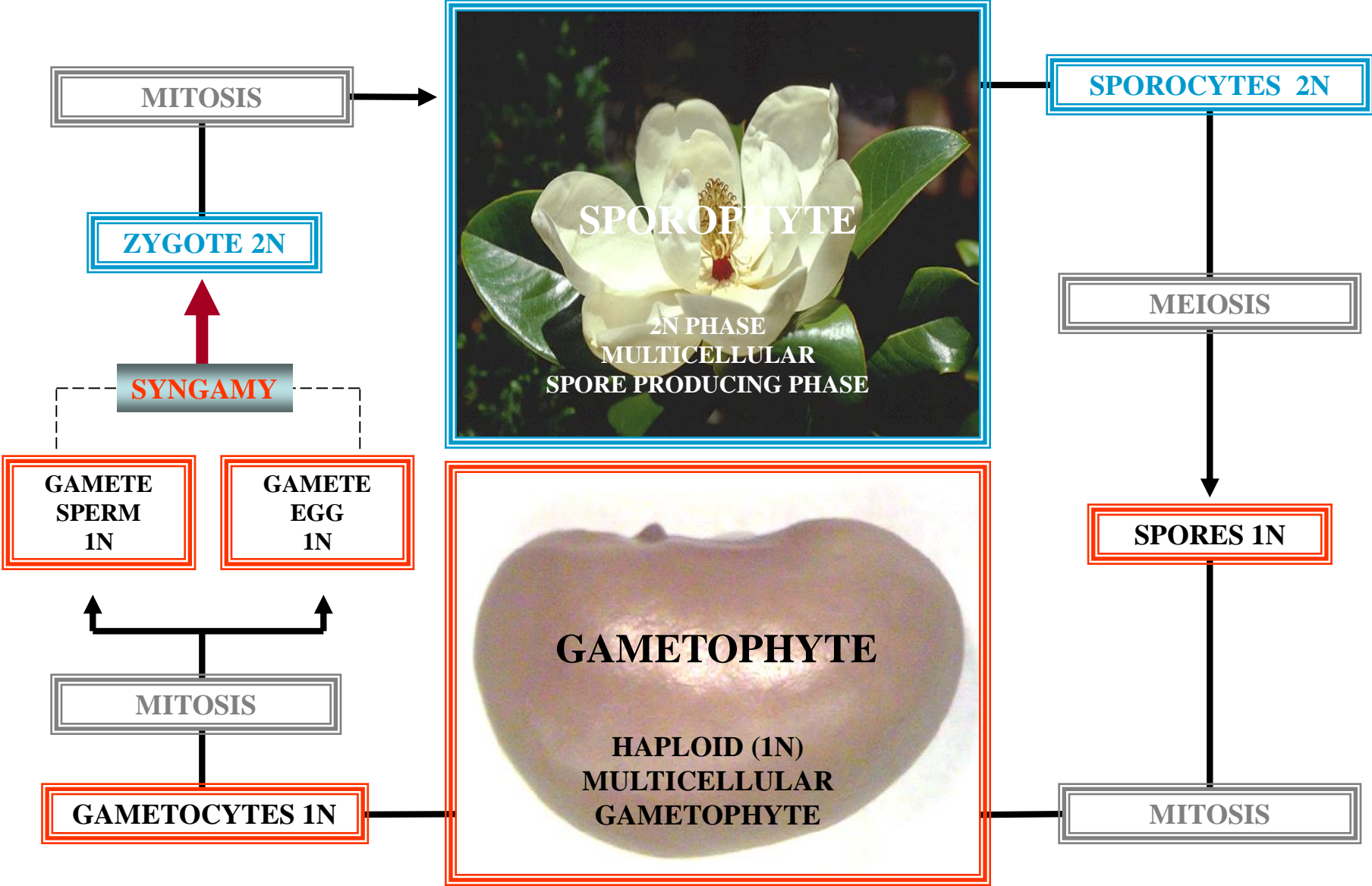
**!!!AS IN LECTURE!!!**



# ANGIOSPERM LIFE CYCLE



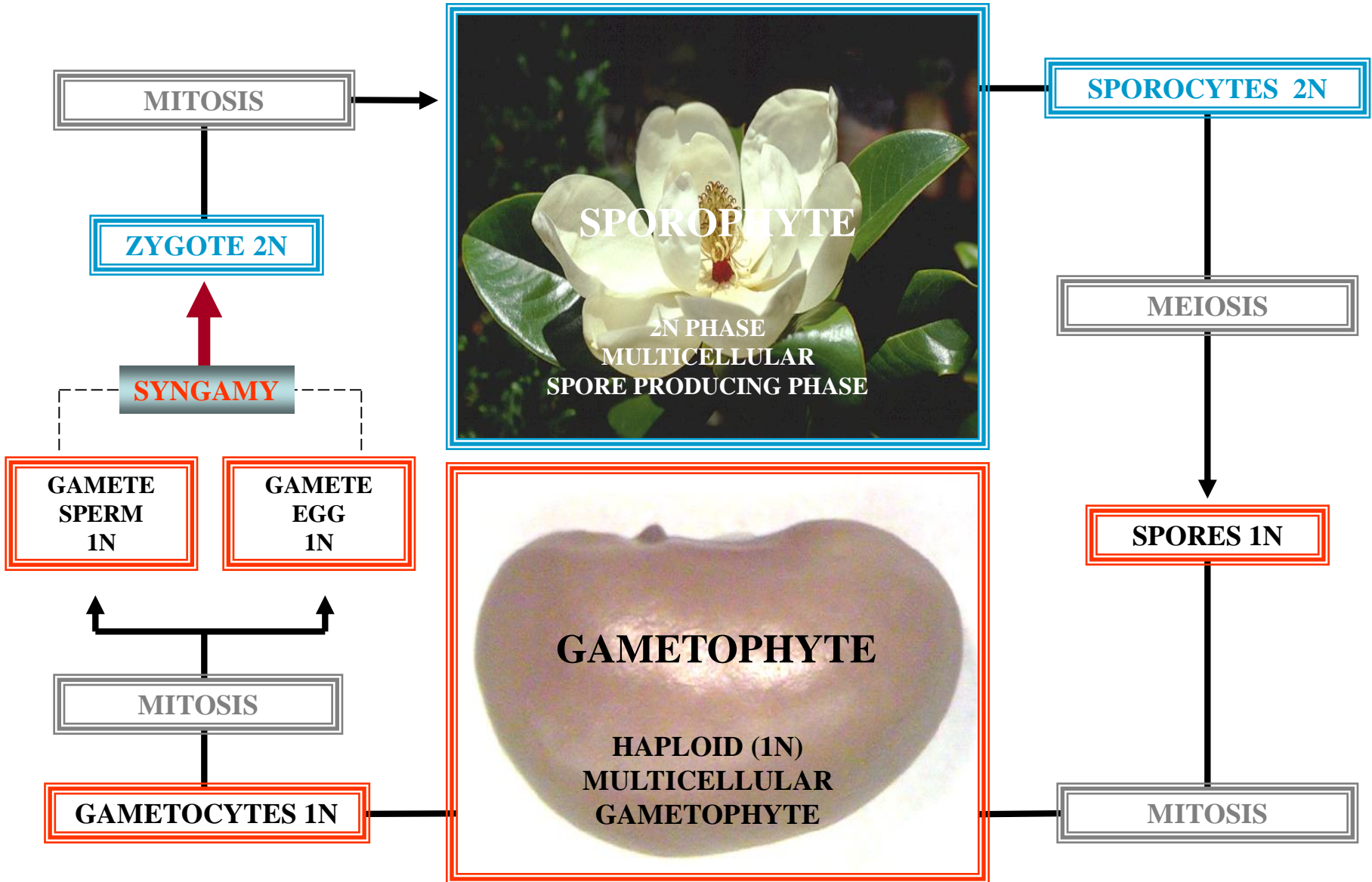
# ANGIOSPERM LIFE CYCLE





# ANGIOSPERM

## SPORIC LIFE CYCLE

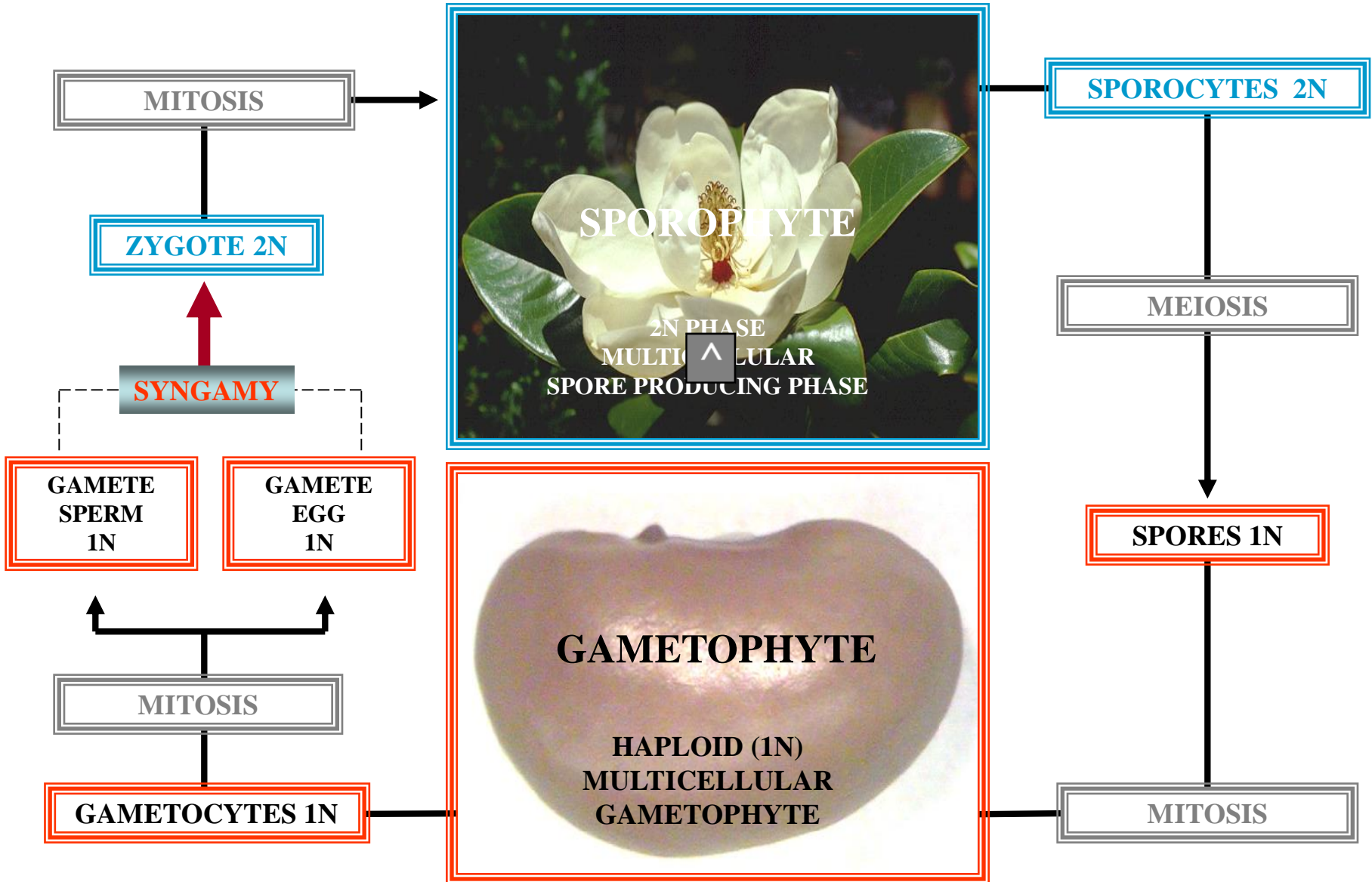




# ANGIOSPERM



## HETEROMORPHIC SPORIC LIFE CYCLE

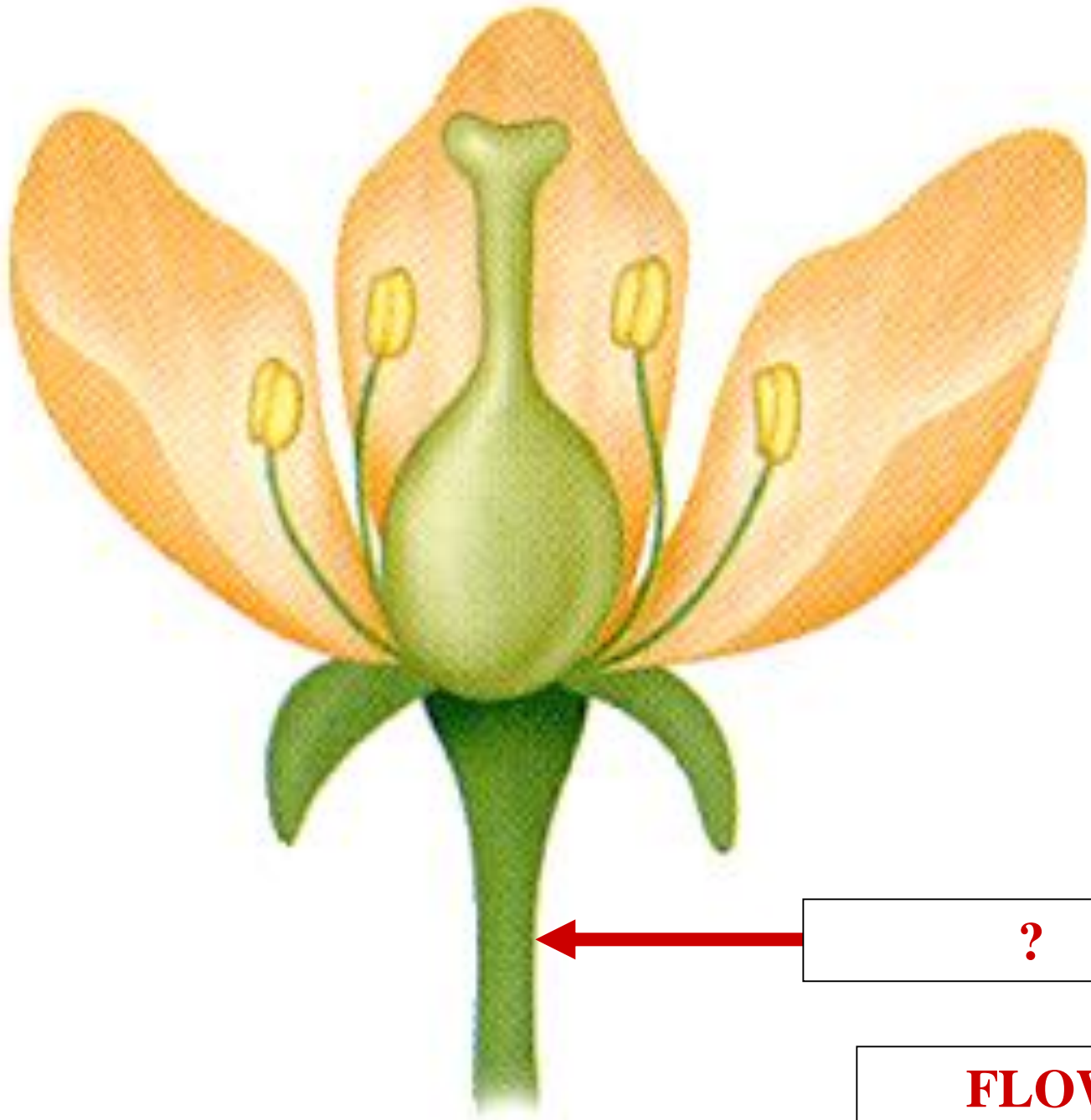




# **FLOWER MORPHOLOGY REVIEW**

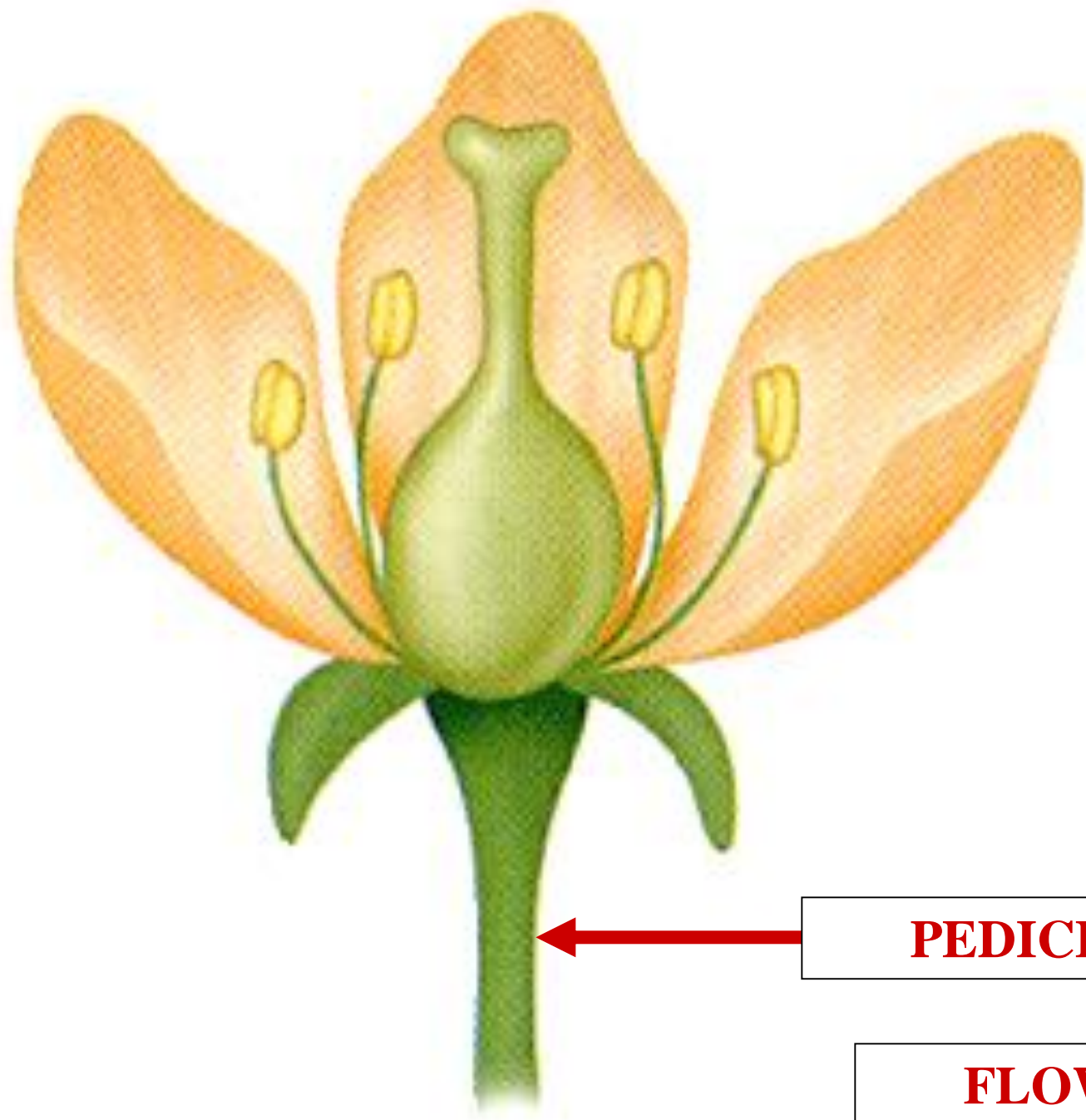


**FLOWER**



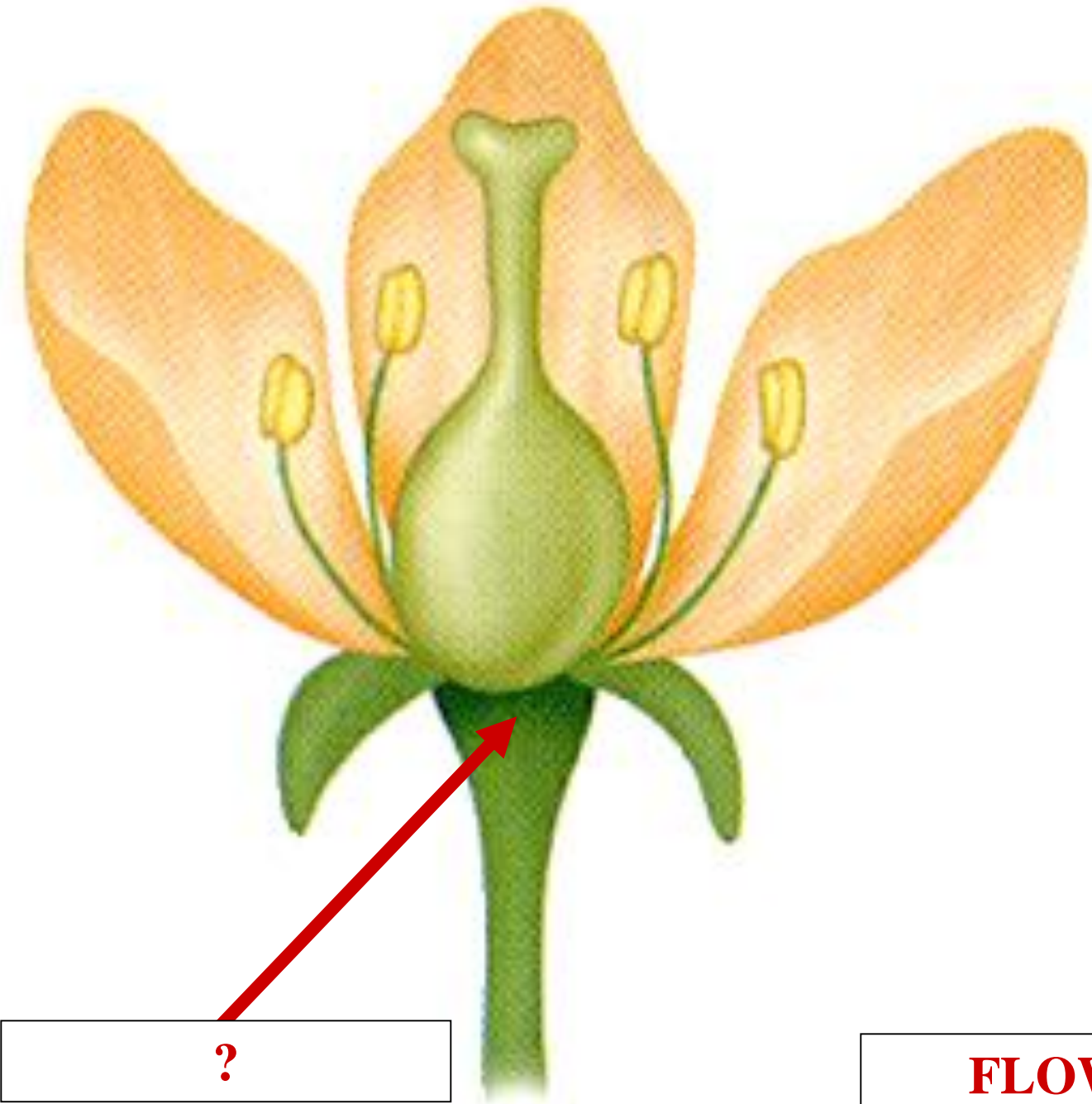
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**FLOWER**



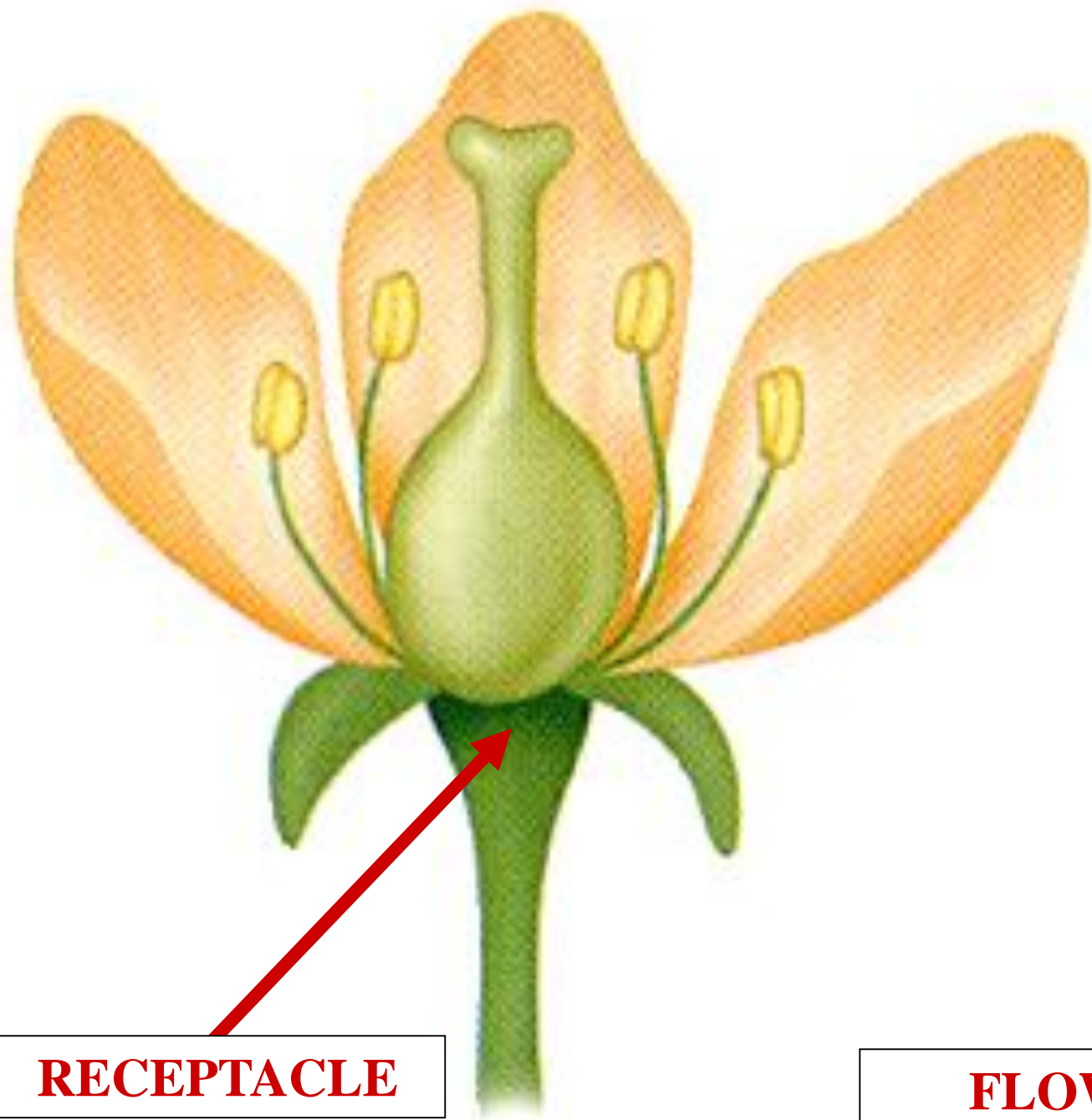
**PEDICEL**

**FLOWER**



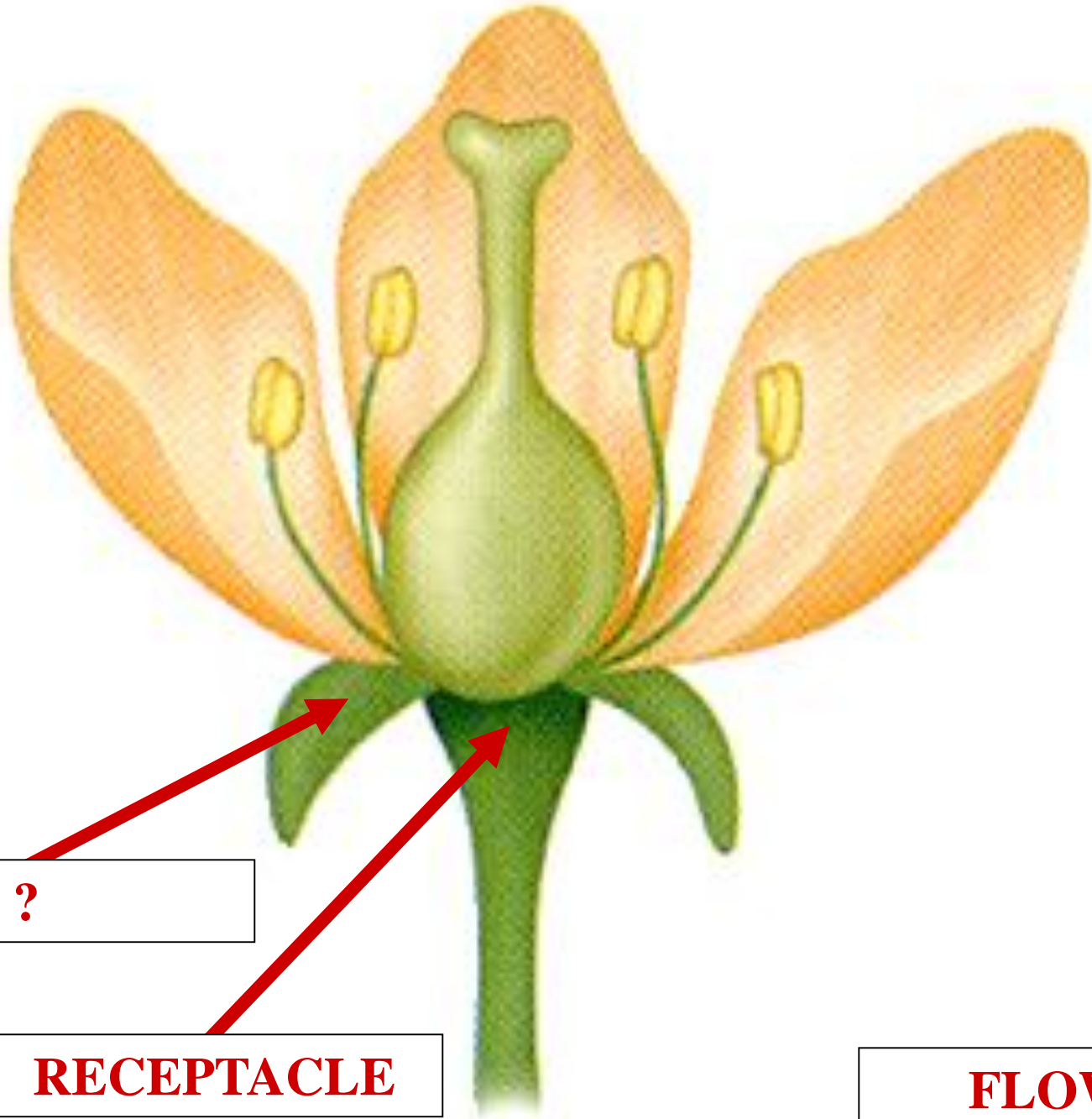
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**FLOWER**



**RECEPTACLE**

**FLOWER**

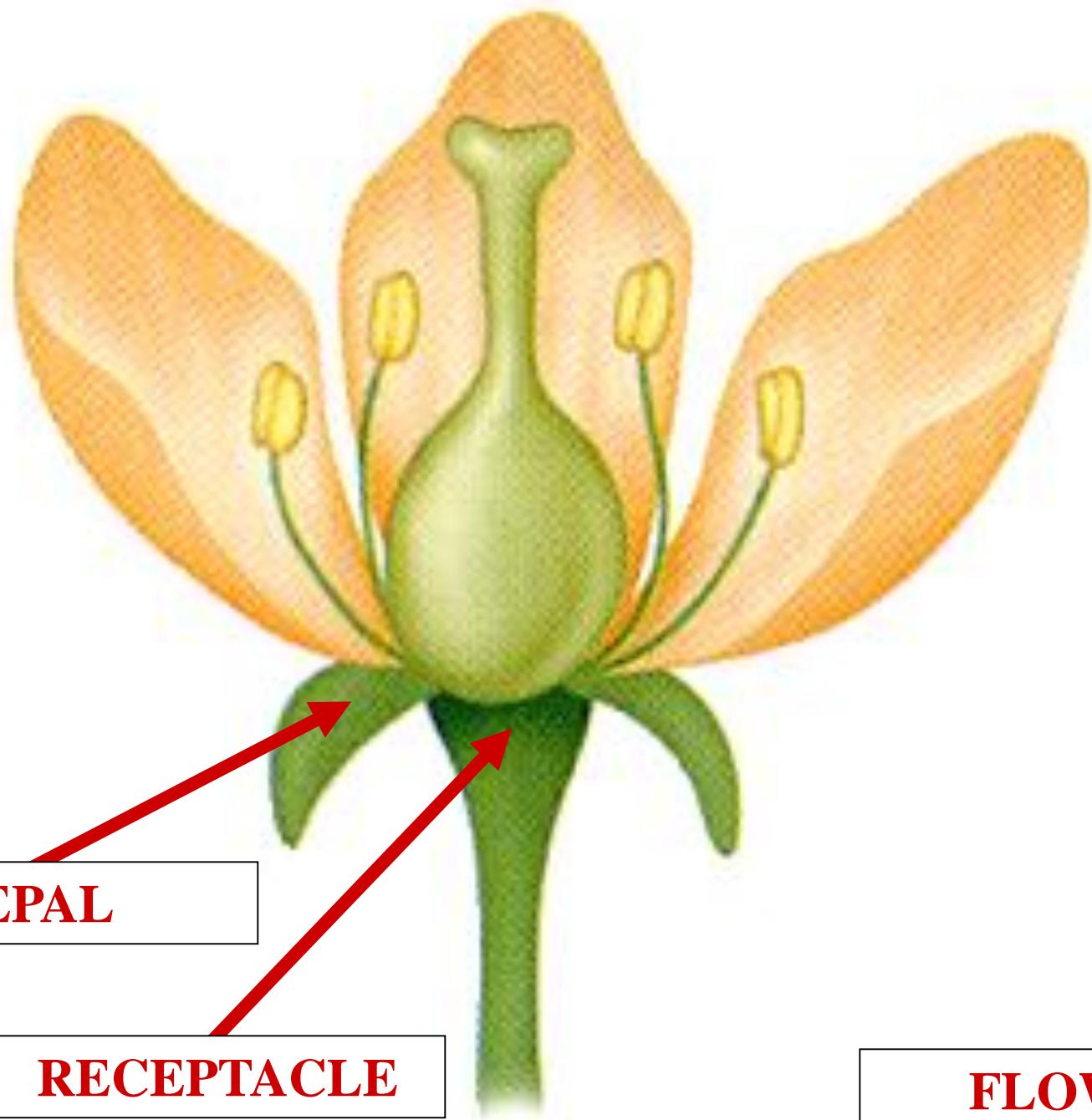


?

**RECEPTACLE**

**FLOWER**

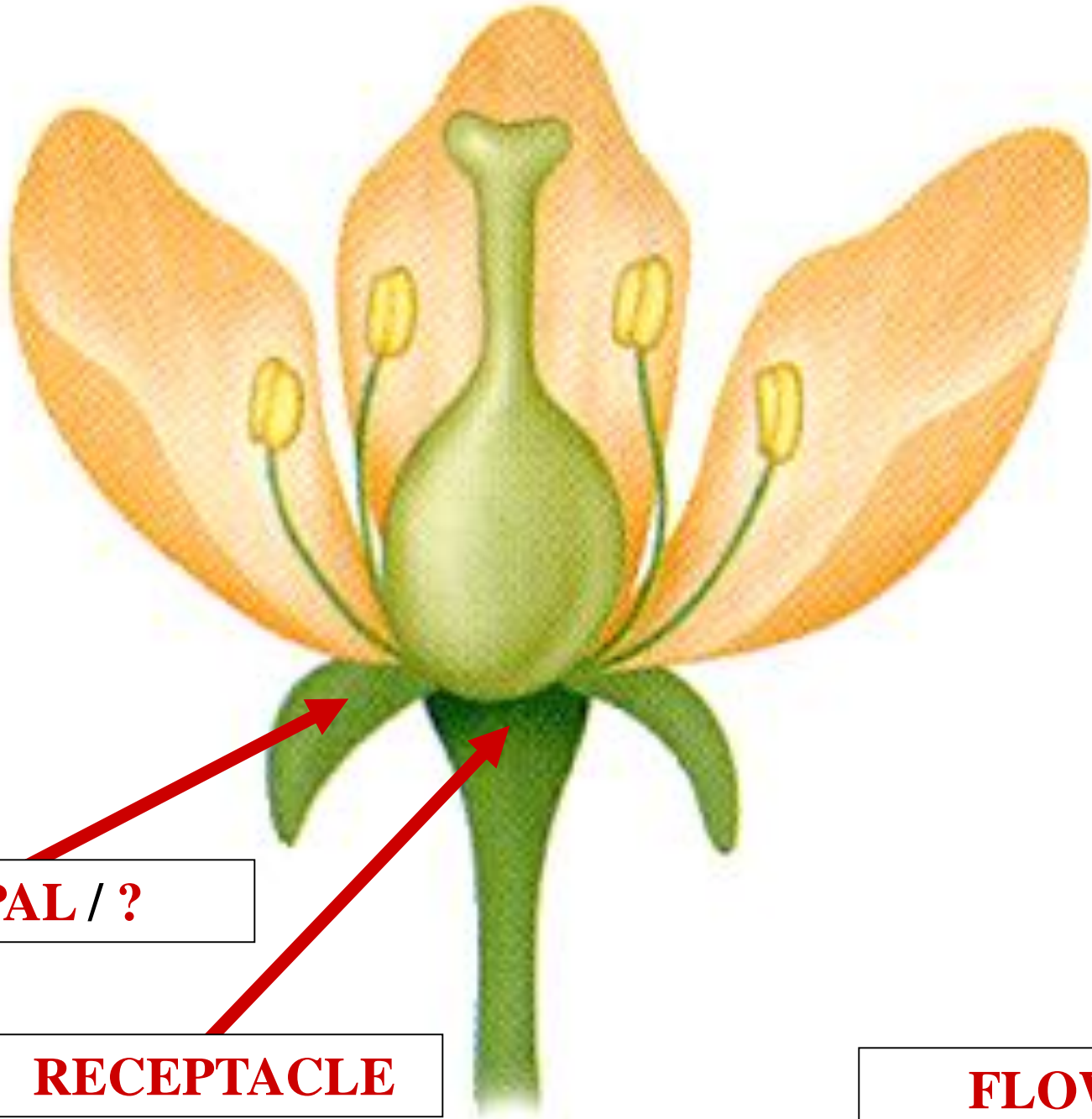




**SEPAL**

**RECEPTACLE**

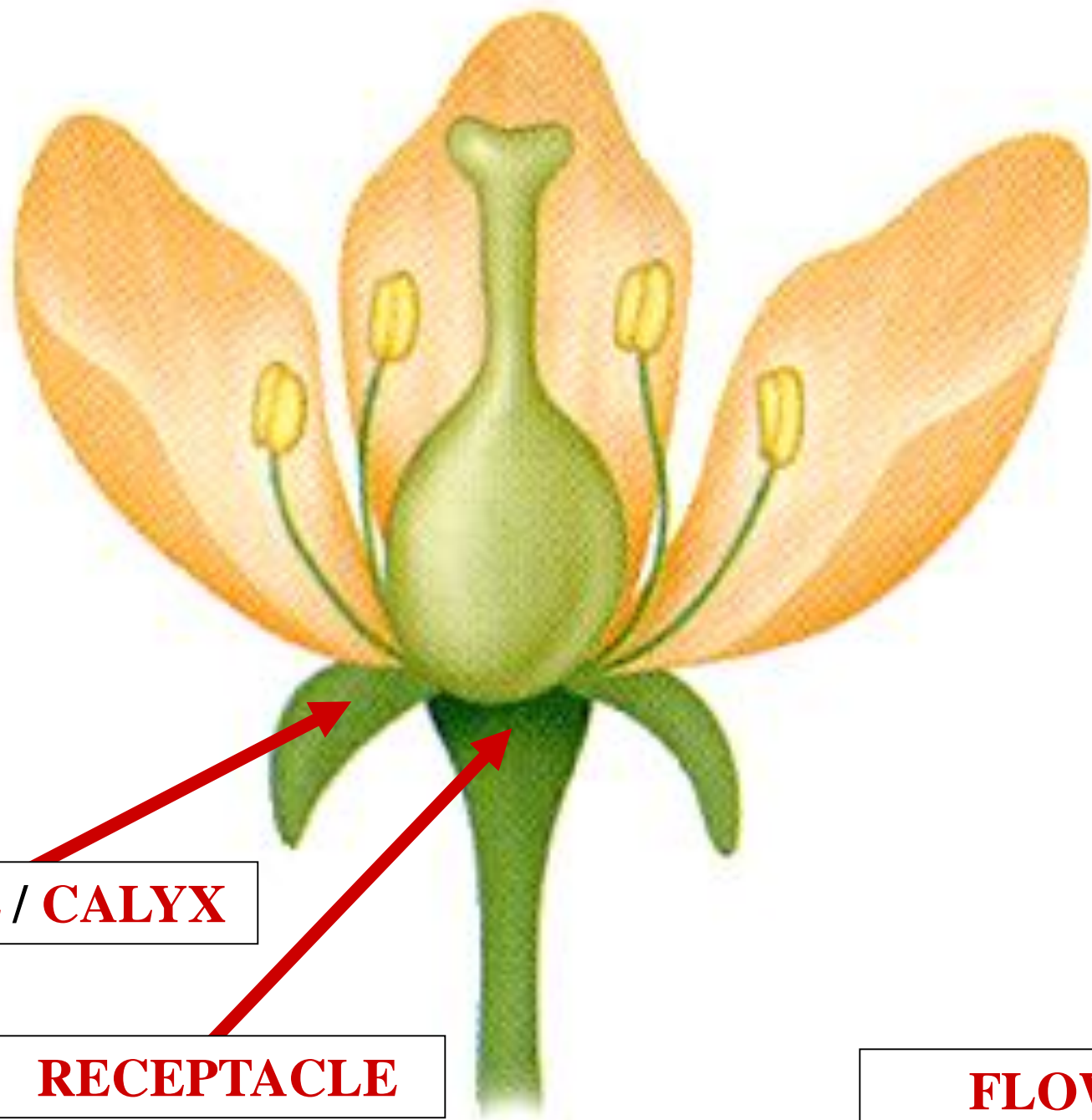
**FLOWER**



**SEPAL / ?**

**RECEPTACLE**

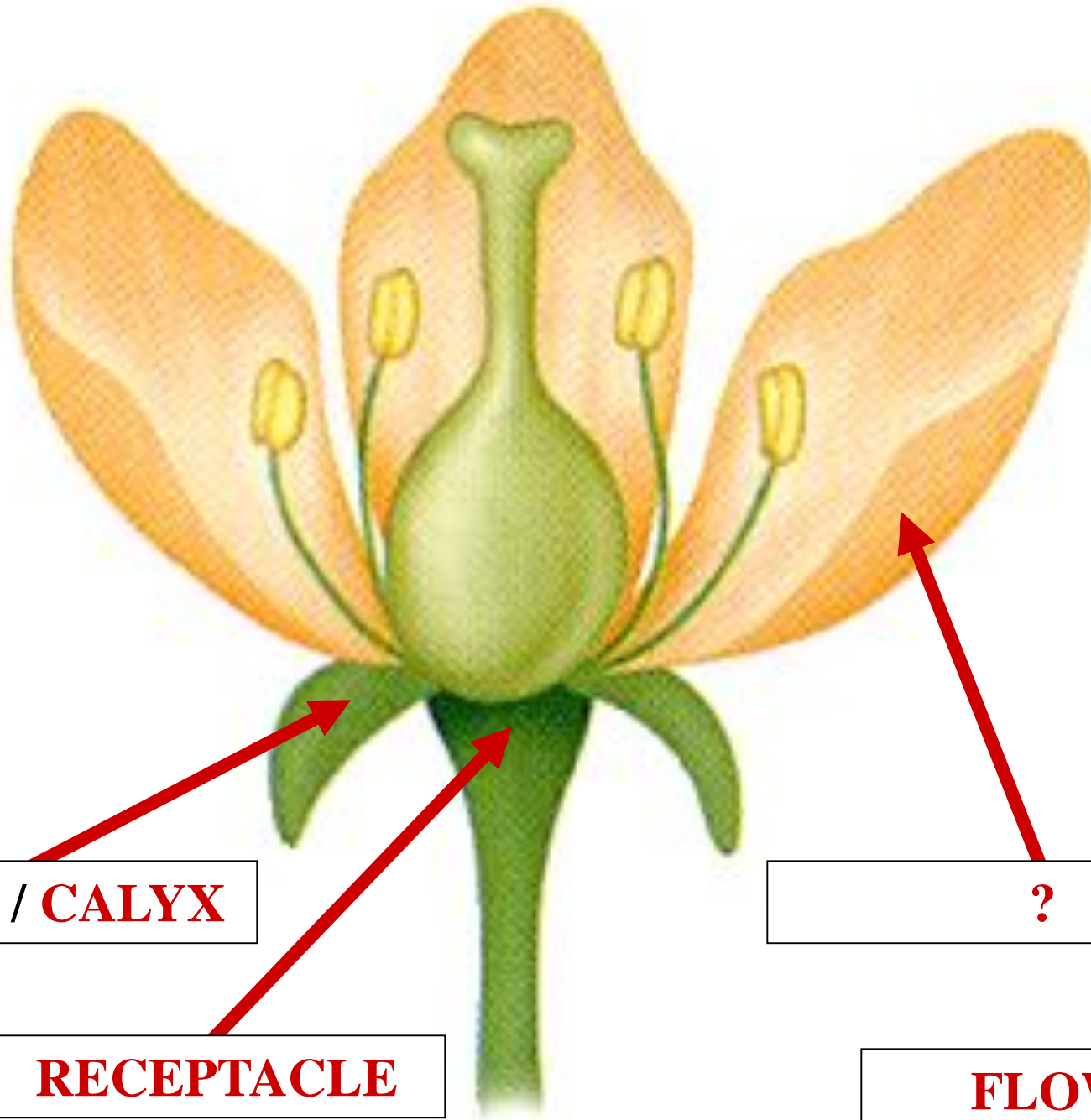
**FLOWER**



**SEPAL / CALYX**

**RECEPTACLE**

**FLOWER**

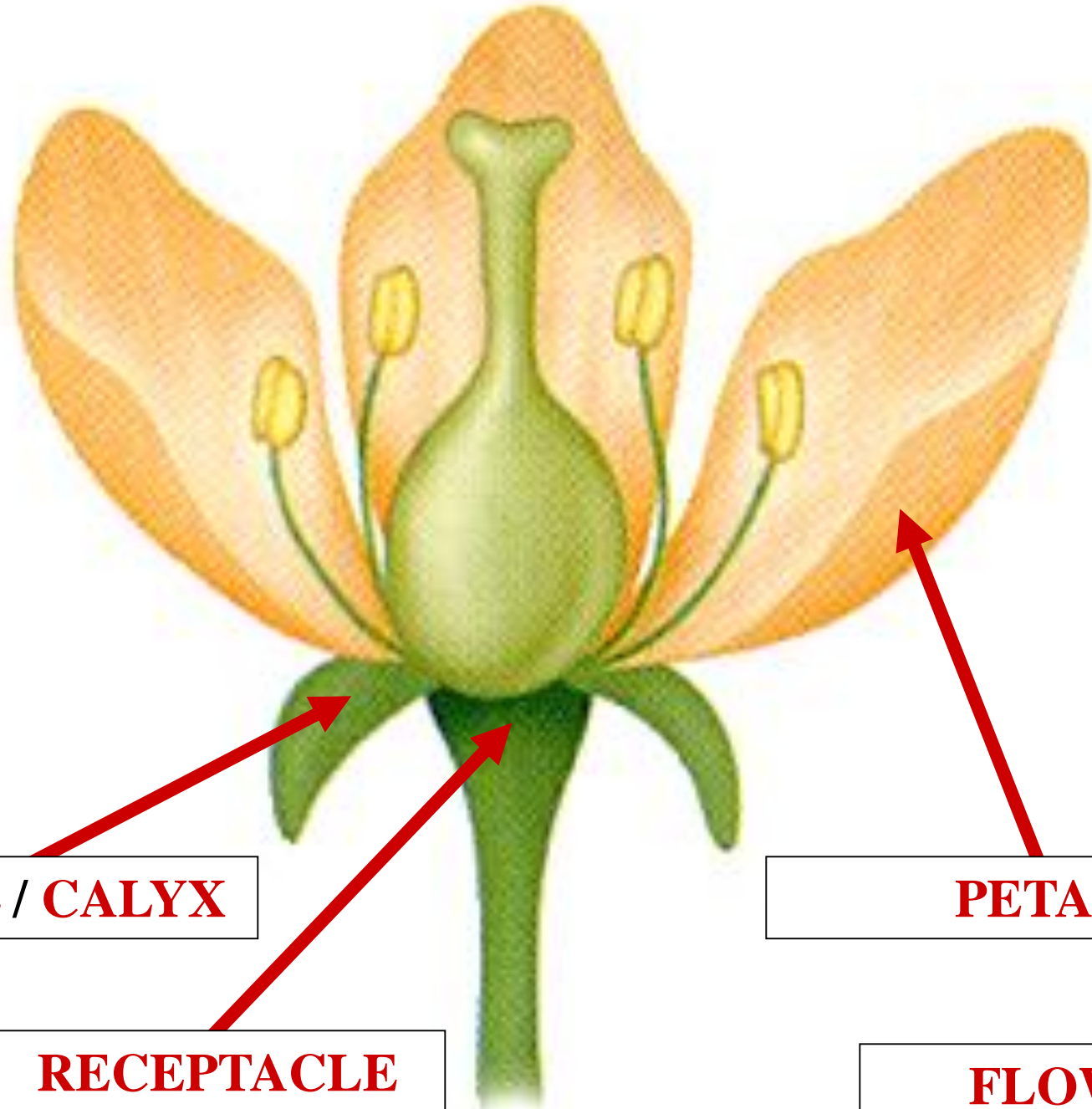


**SEPAL / CALYX**

**RECEPTACLE**

**?**

**FLOWER**

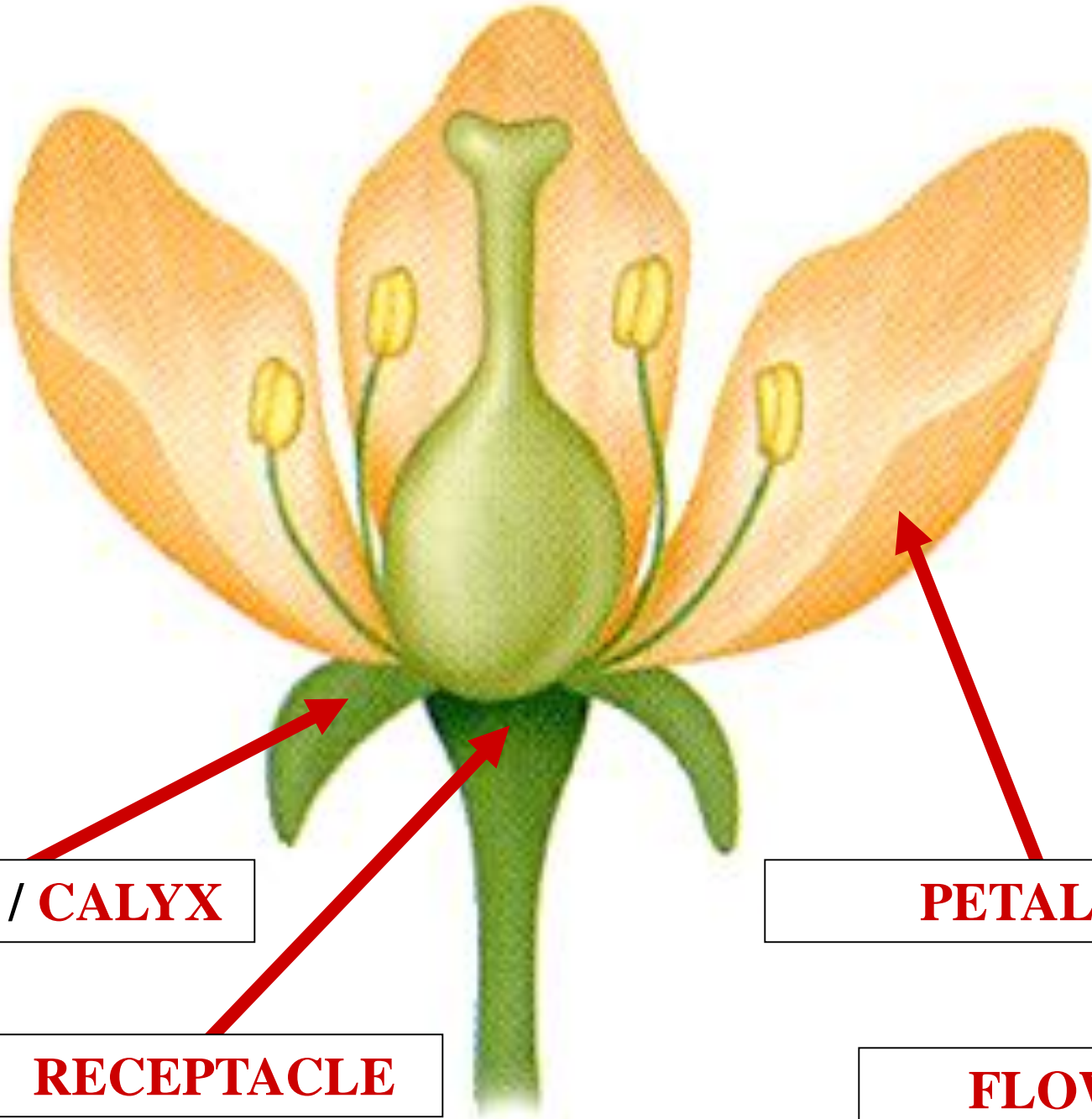


**SEPAL / CALYX**

**PETAL**

**RECEPTACLE**

**FLOWER**

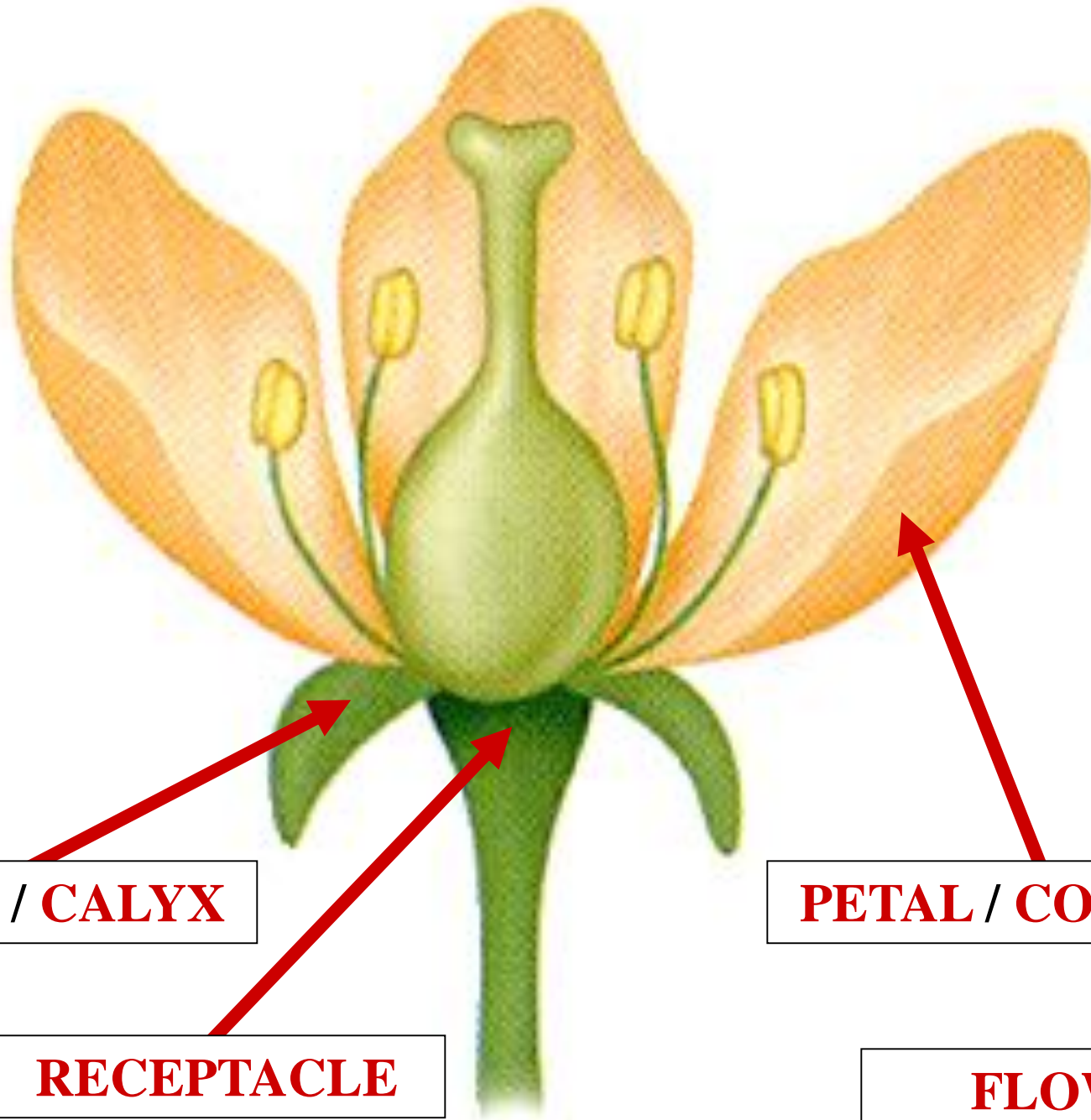


**SEPAL / CALYX**

**RECEPTACLE**

**PETAL / ?**

**FLOWER**

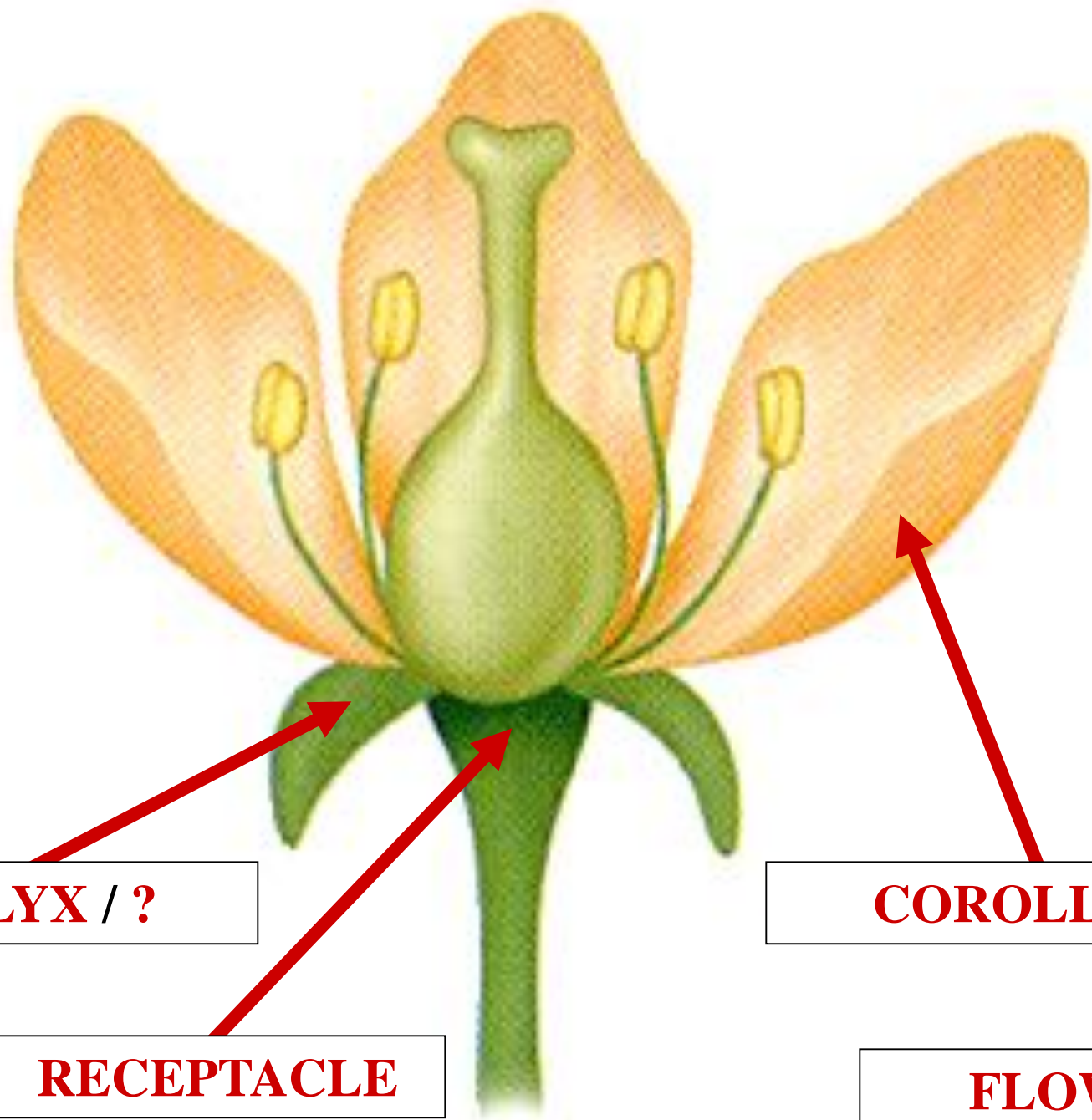


**SEPAL / CALYX**

**RECEPTACLE**

**PETAL / COROLLA**

**FLOWER**



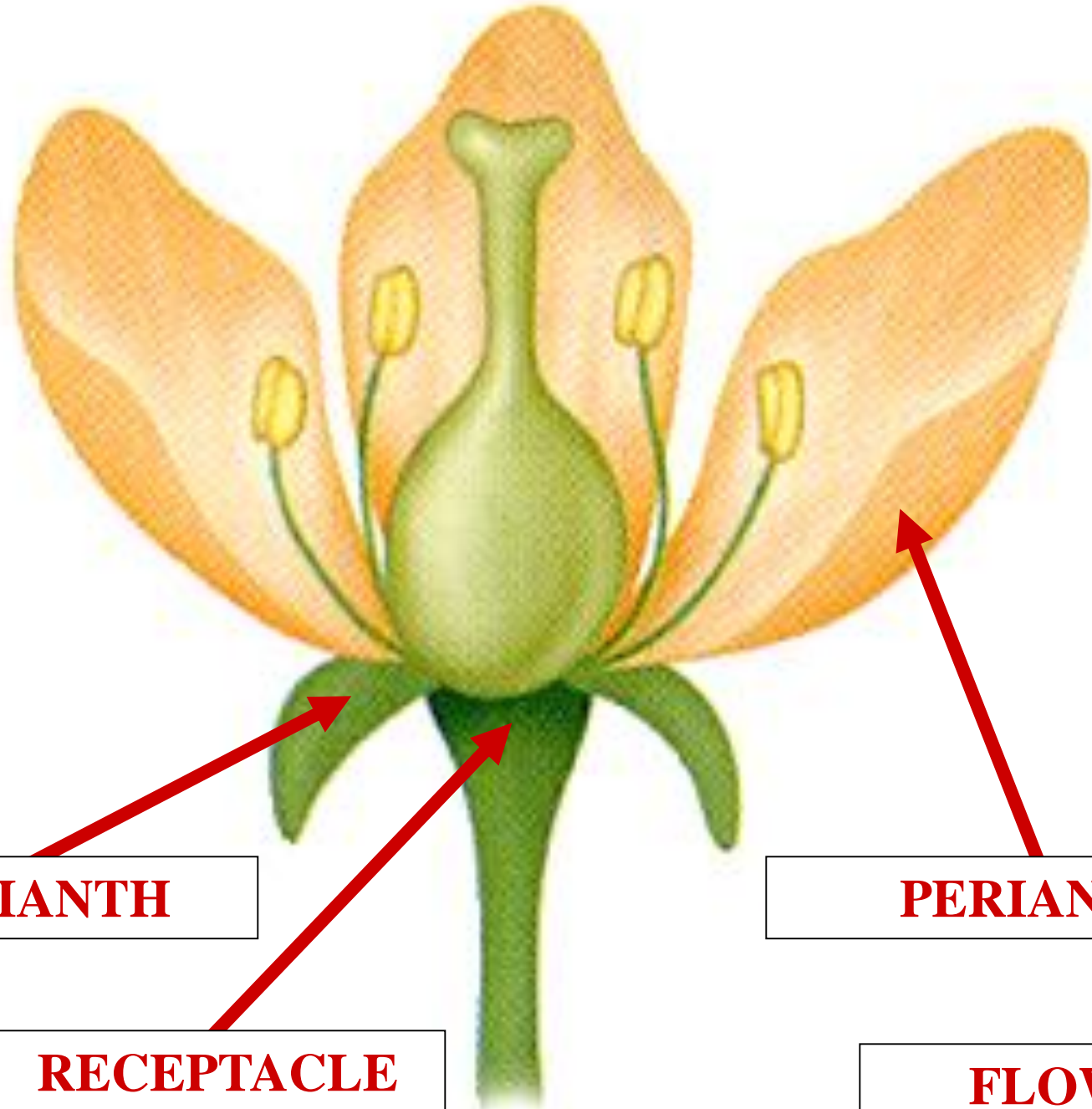
**CALYX / ?**

**RECEPTACLE**

**COROLLA / ?**

**FLOWER**





**PERIANTH**

**RECEPTACLE**

**PERIANTH**

**FLOWER**

?

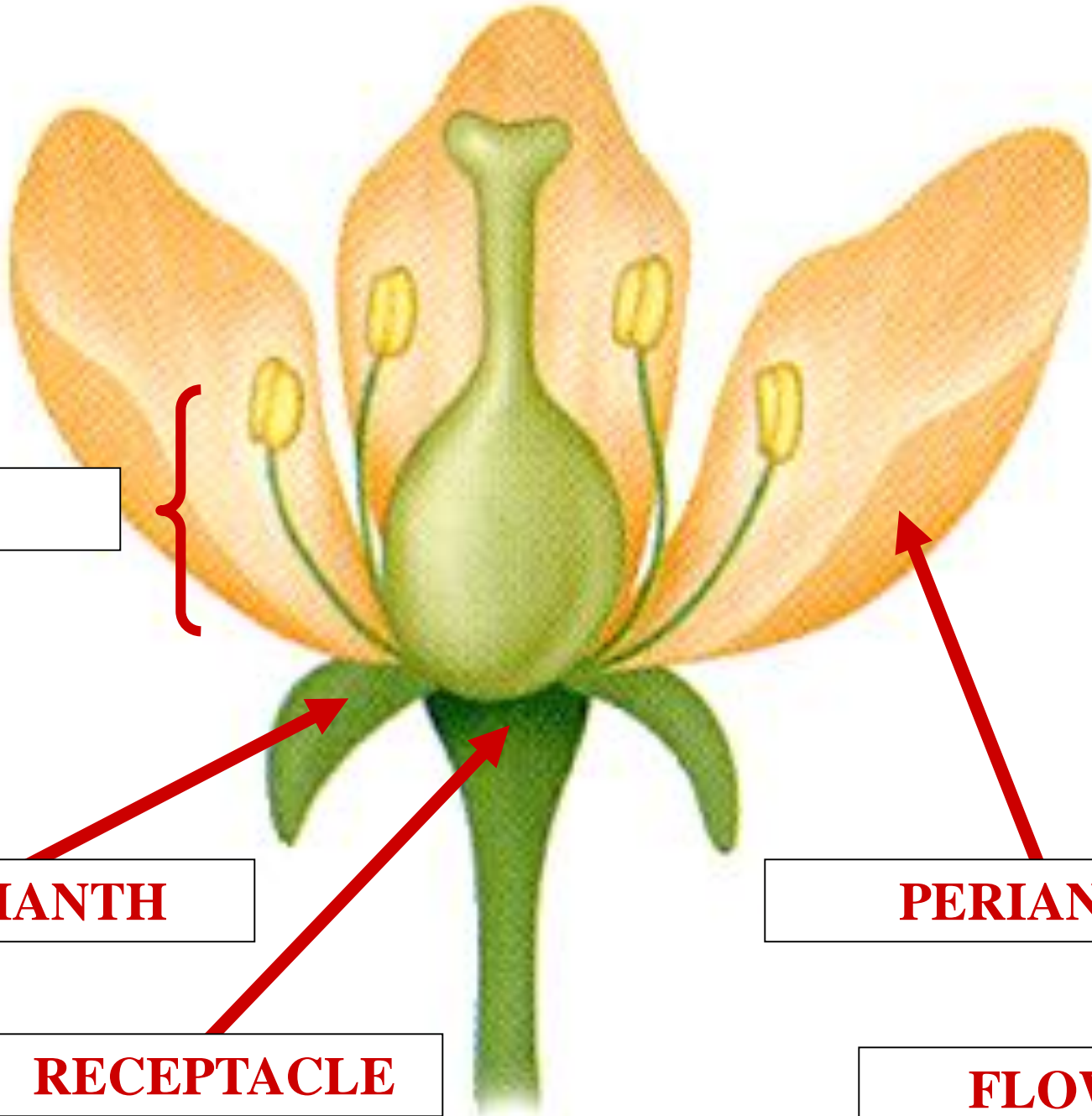


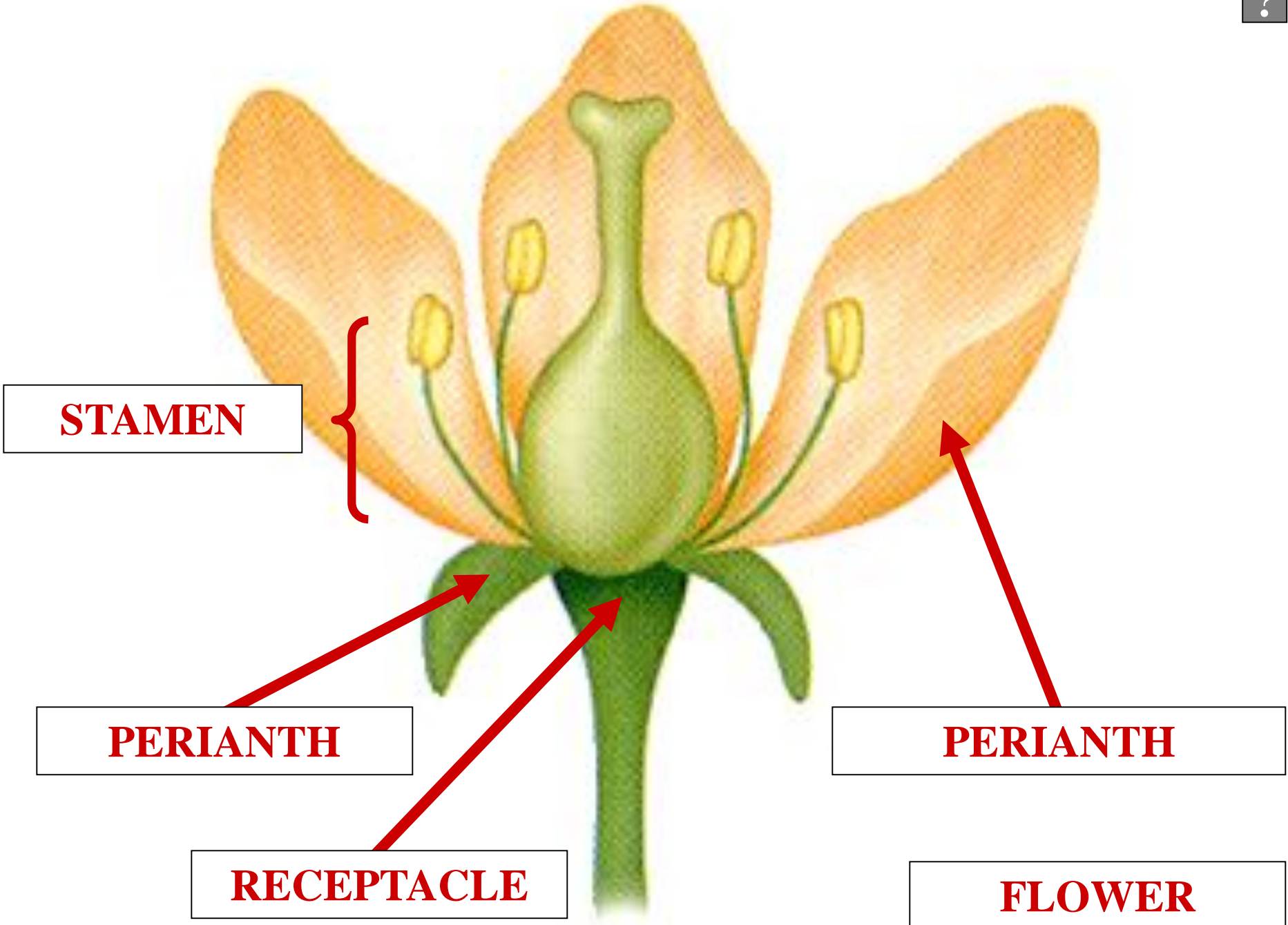
**PERIANTH**

**RECEPTACLE**

**PERIANTH**

**FLOWER**





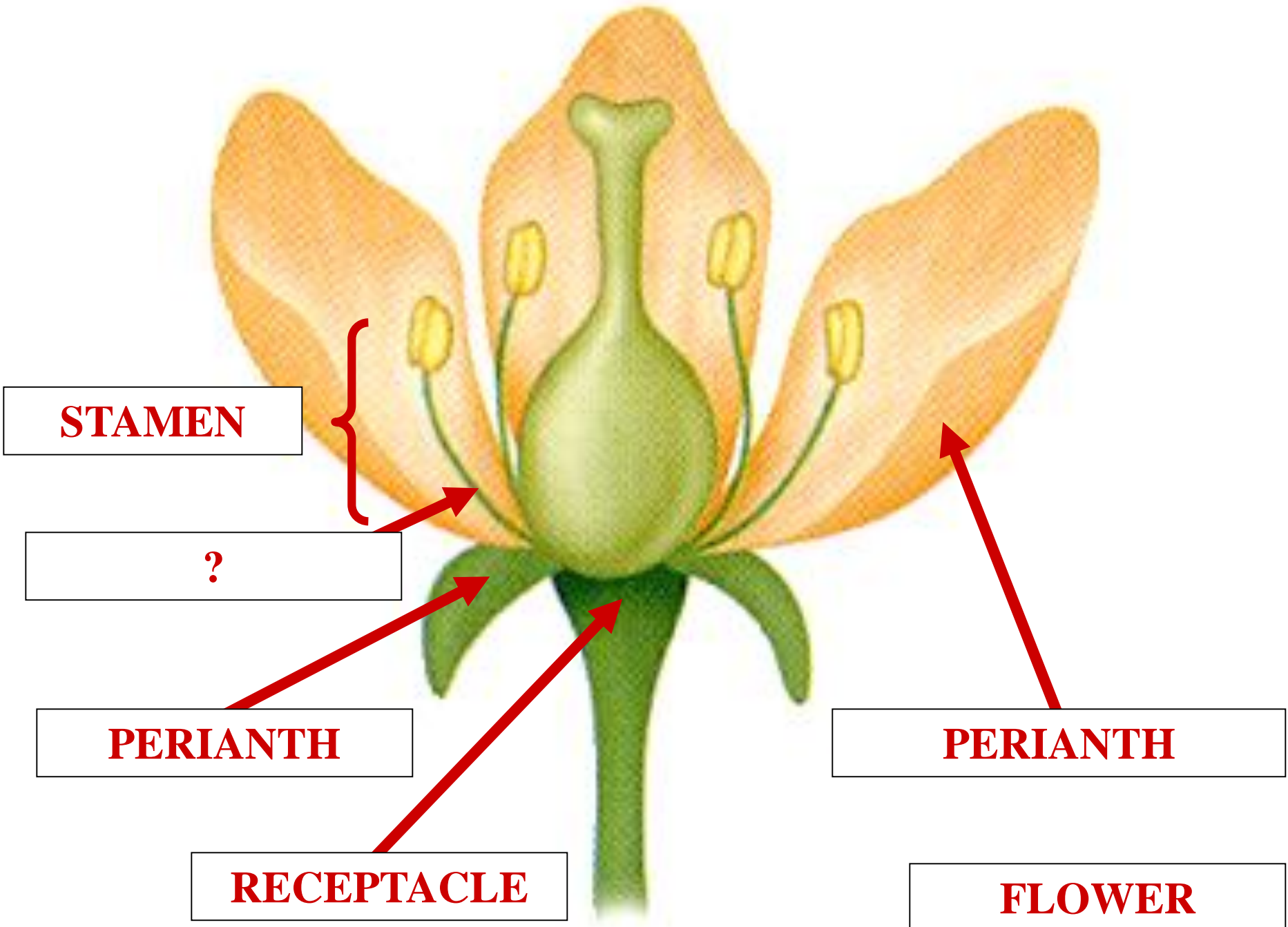
**STAMEN**

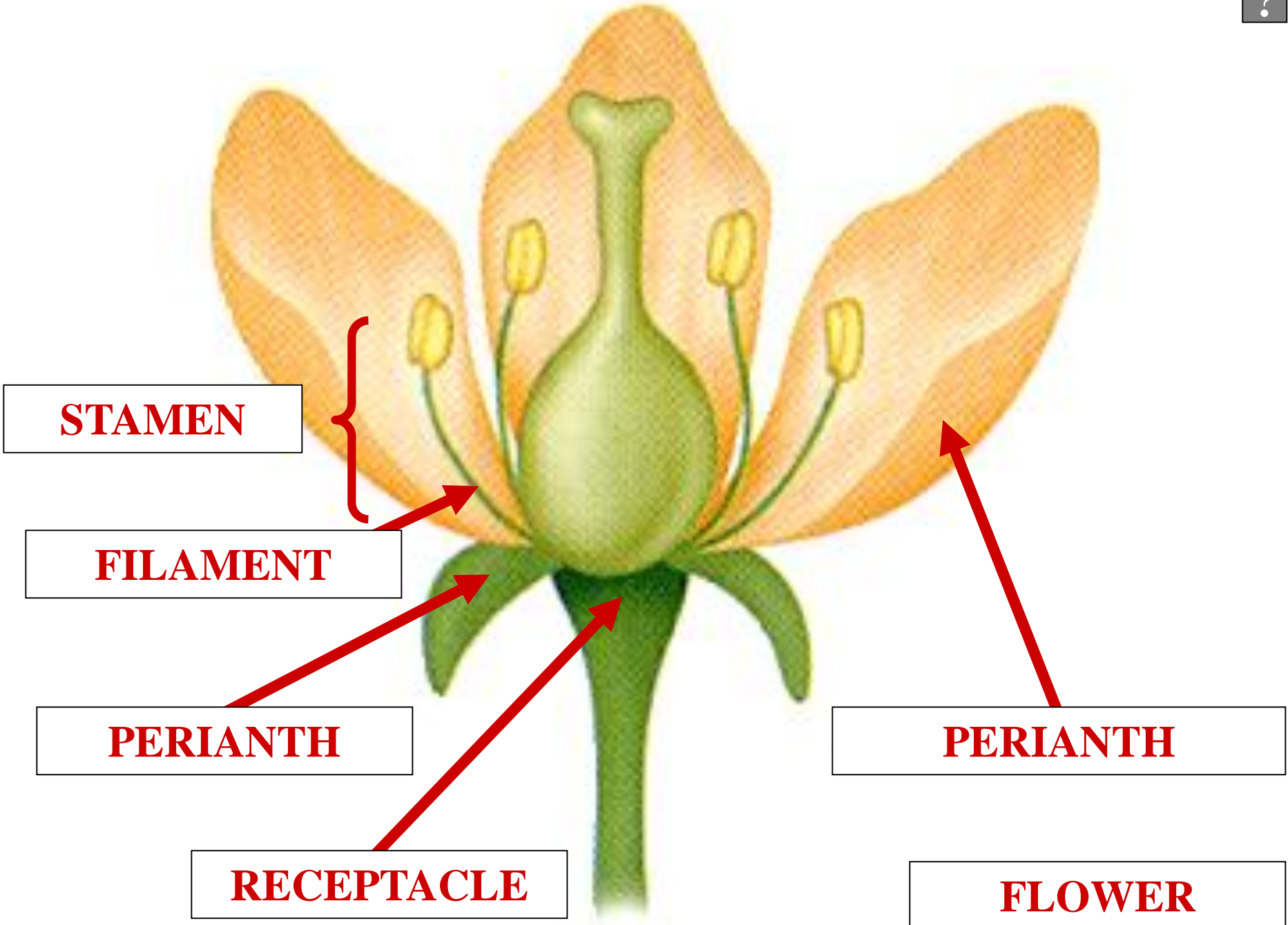
**PERIANTH**

**RECEPTACLE**

**PERIANTH**

**FLOWER**





**STAMEN**

**FILAMENT**

**PERIANTH**

**RECEPTACLE**

**PERIANTH**

**FLOWER**

?

**STAMEN**

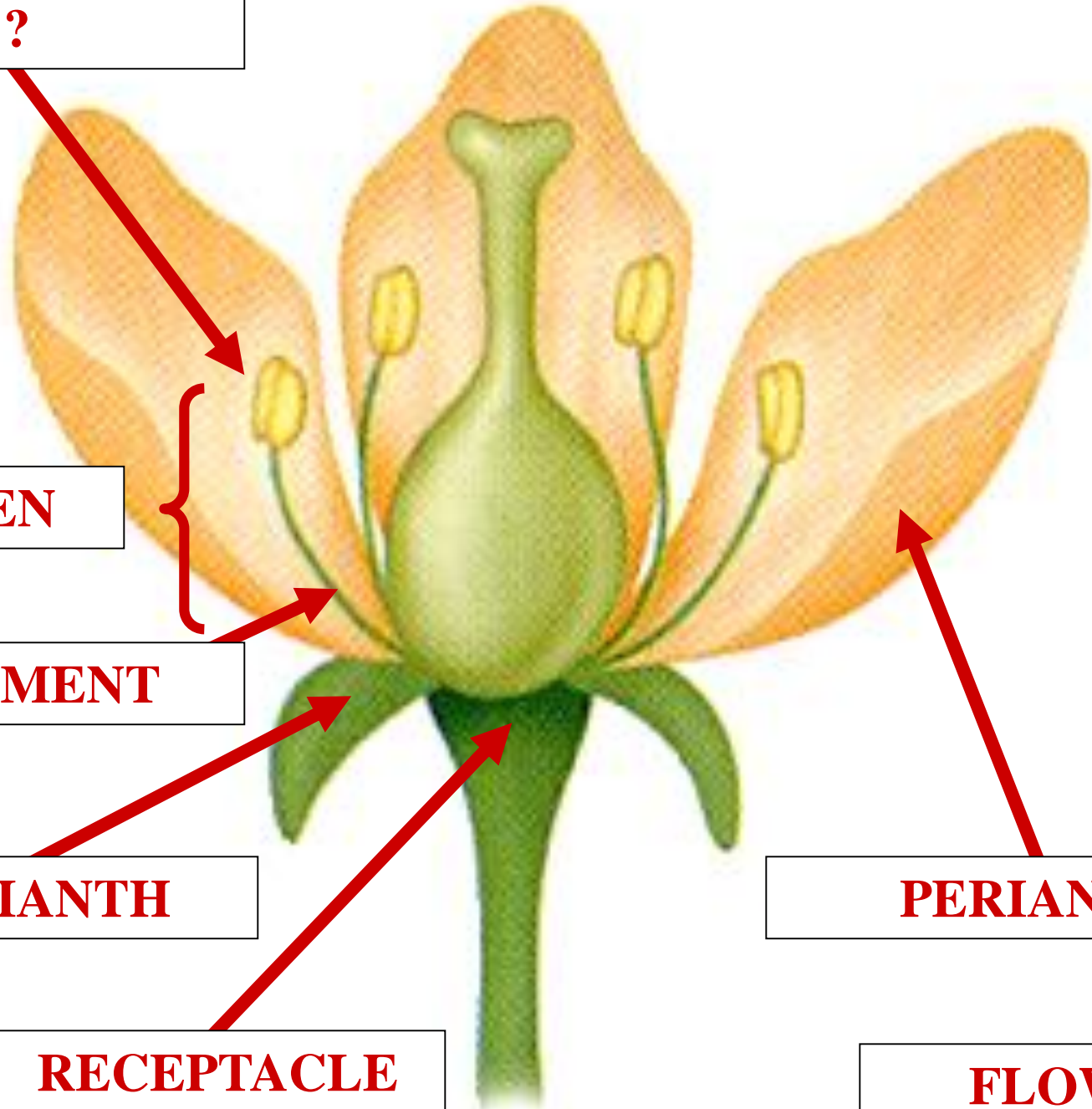
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**PERIANTH**

**RECEPTACLE**

**PERIANTH**

**FLOWER**



**ANTHER**

**STAMEN**

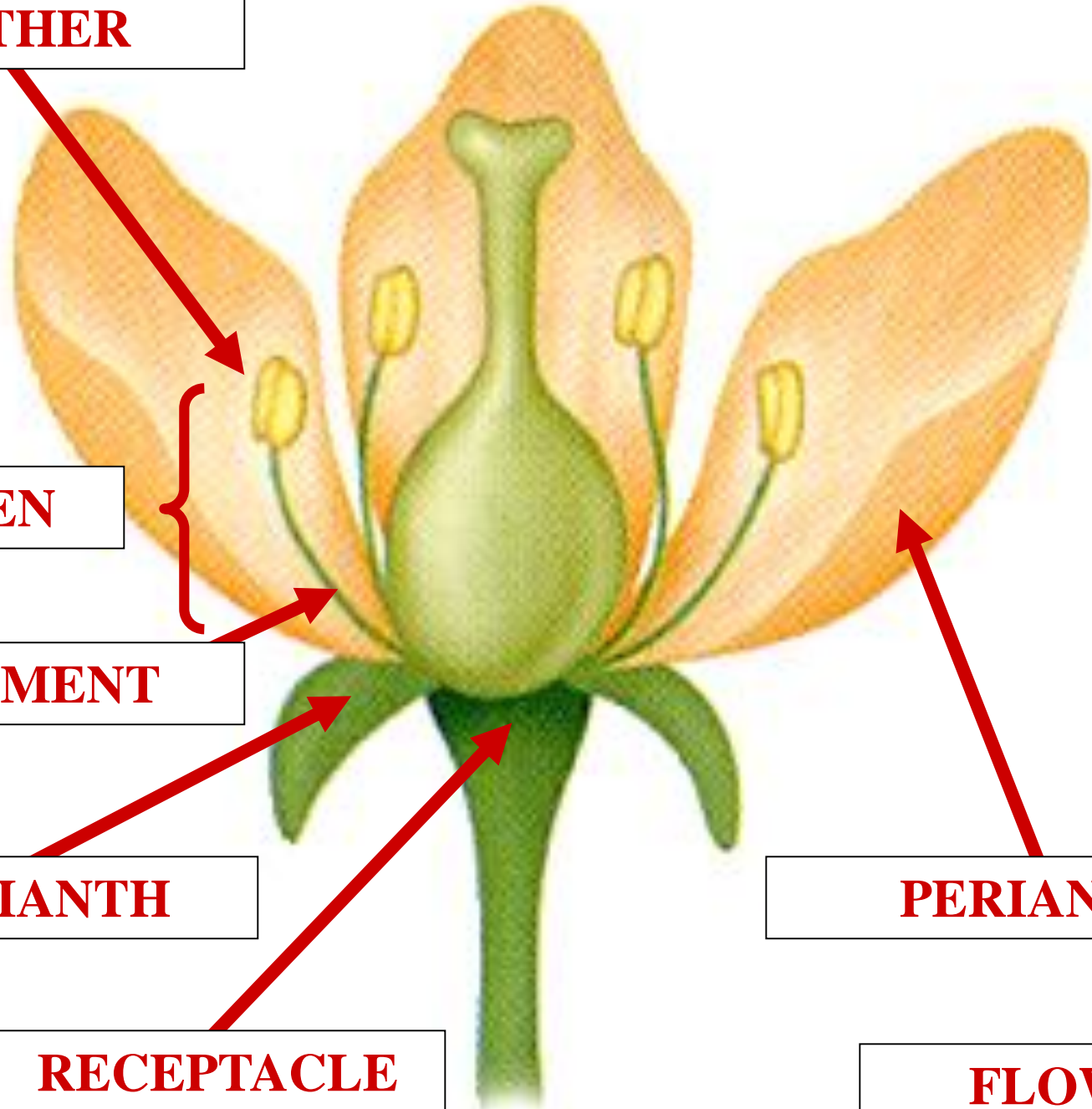
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**PERIANTH**

**RECEPTACLE**

**PERIANTH**

**FLOWER**



**ANTHER**

**?**

**STAMEN**

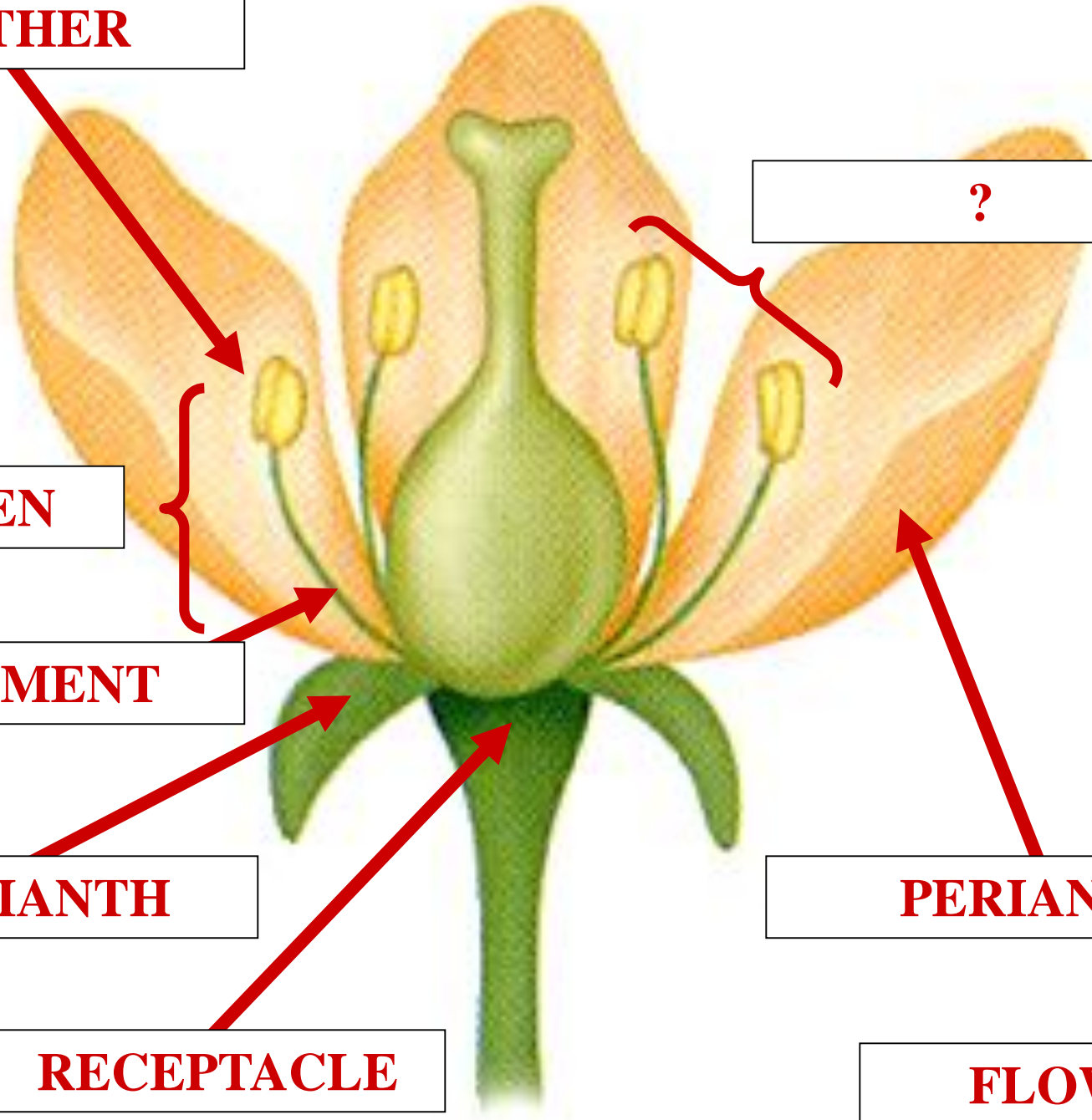
**FILAMENT**

**PERIANTH**

**RECEPTACLE**

**PERIANTH**

**FLOWER**





**ANTHER**

**ANDROECIUM**

**STAMEN**

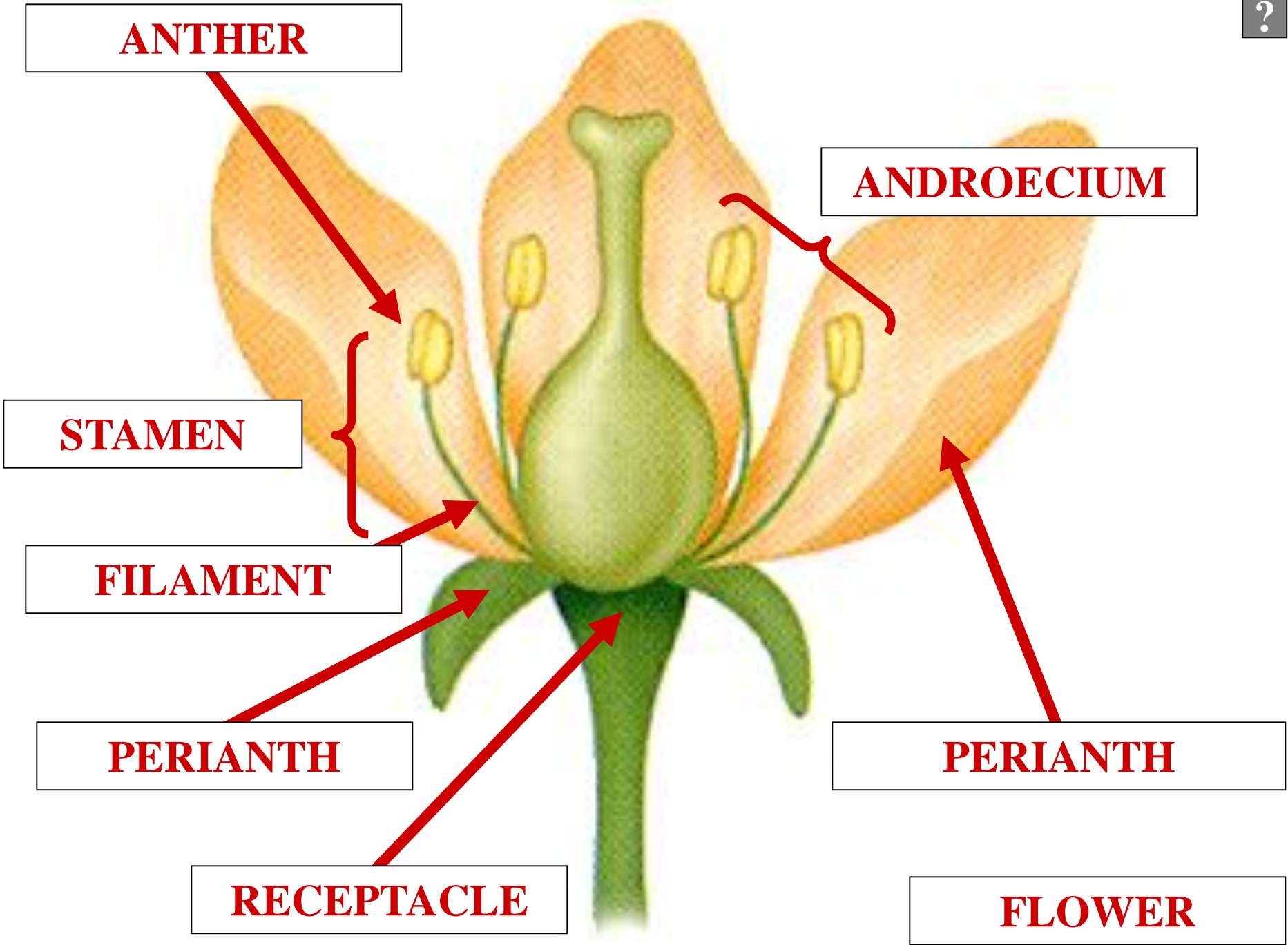
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**PERIANTH**

**RECEPTACLE**

**PERIANTH**

**FLOWER**



**ANTHER**

**STAMEN**

**FILAMENT**

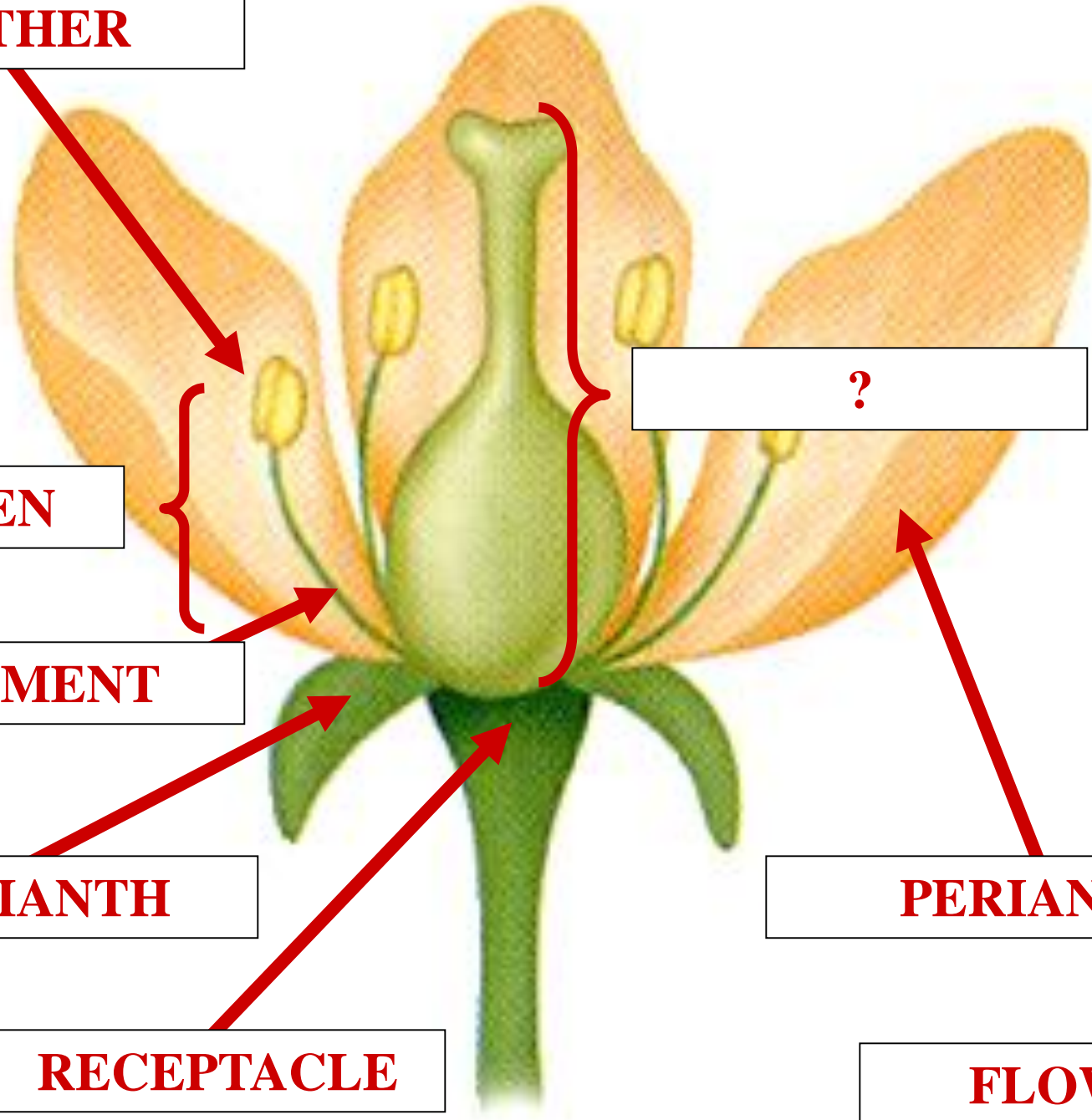
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**RECEPTACLE**

**?**

**PERIANTH**

**FLOWER**



**ANTHER**



**STAMEN**



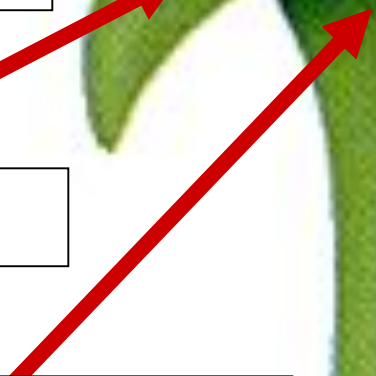
**FILAMENT**



**PERIANTH**



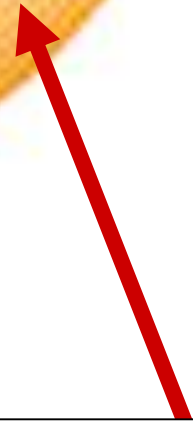
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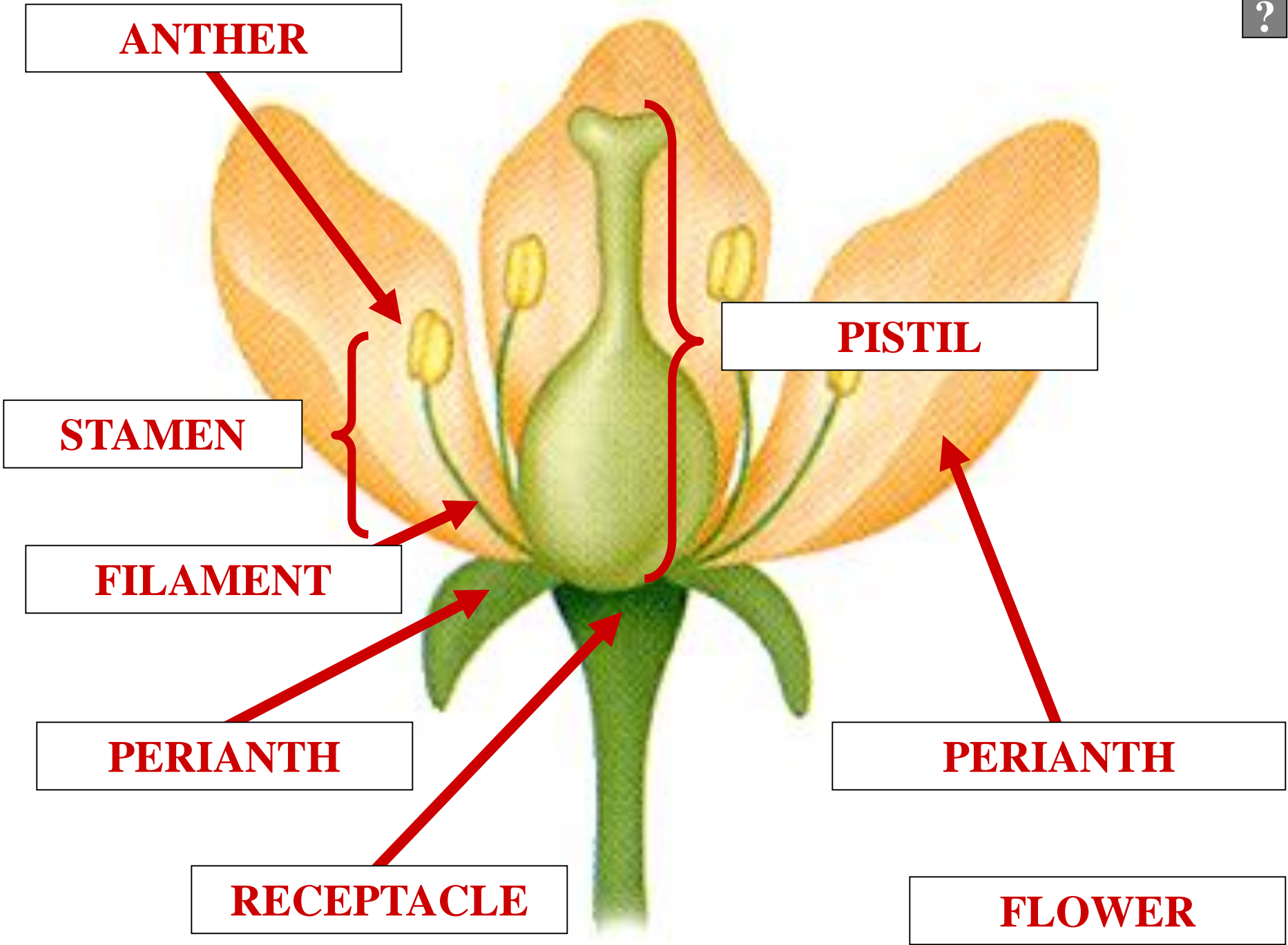
**PISTIL**



**PERIANTH**



**FLOWER**



**ANTHER**

**?**

**STAMEN**

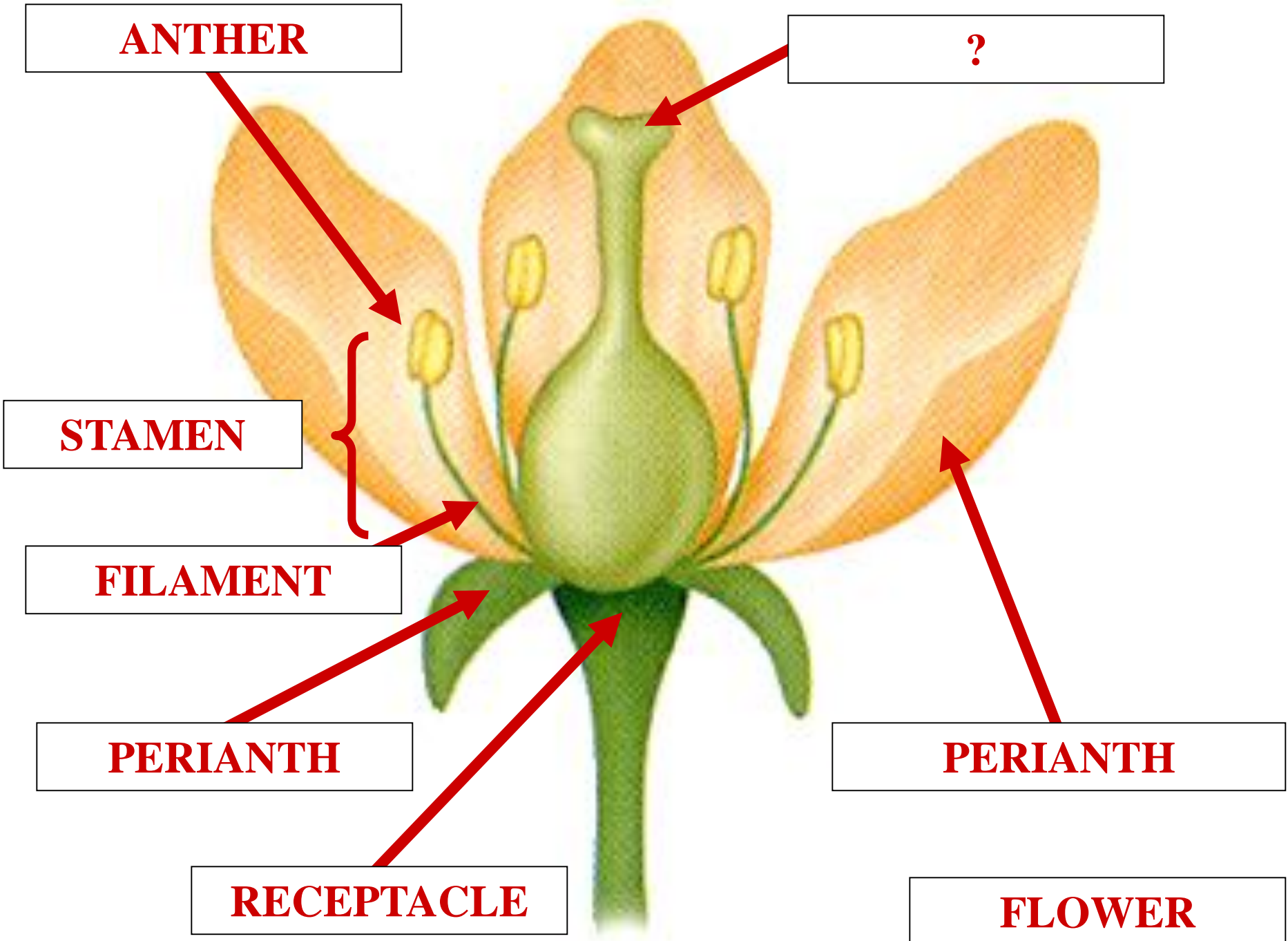
**FILAMENT**

**PERIANTH**

**RECEPTACLE**

**PERIANTH**

**FLOWER**





**ANTHER**

**STIGMA**

**STAMEN**

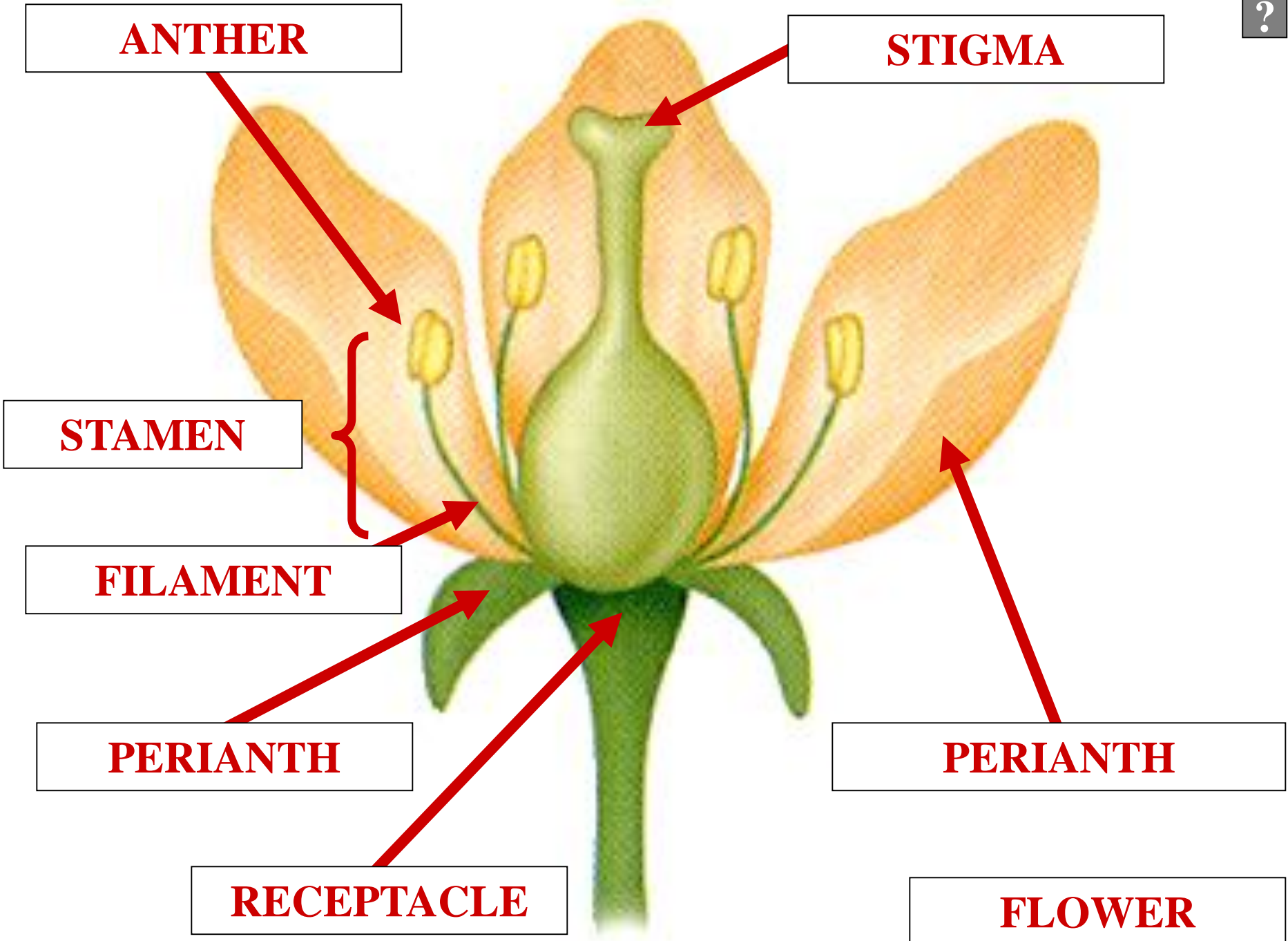
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**PERIANTH**

**RECEPTACLE**

**PERIANTH**

**FLOWER**



**ANTHER**

**STIGMA**

**?**

**STAMEN**

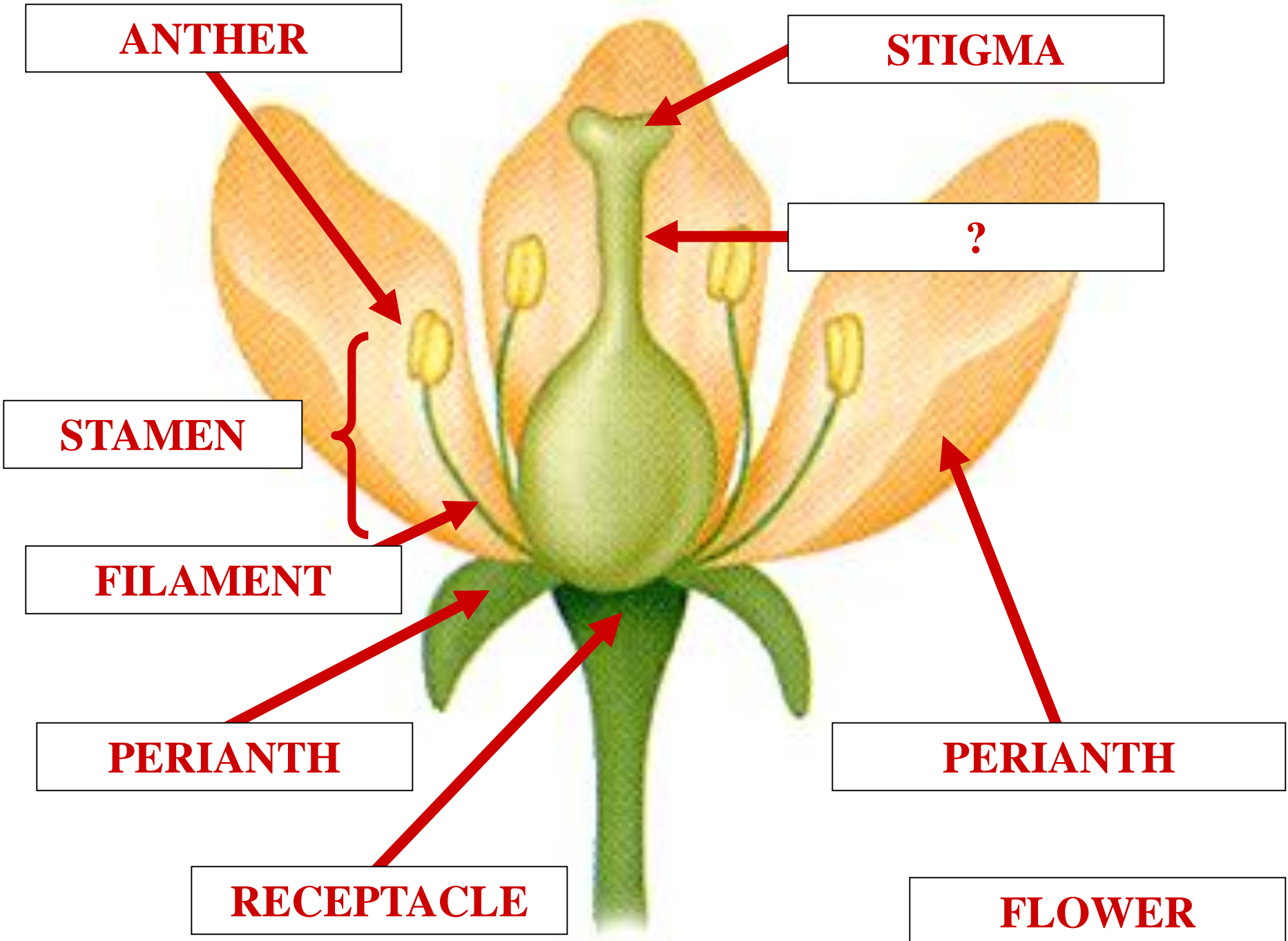
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**PERIANTH**

**FLOWER**





**ANTHER**

**STIGMA**

**STYLE**

**STAMEN**

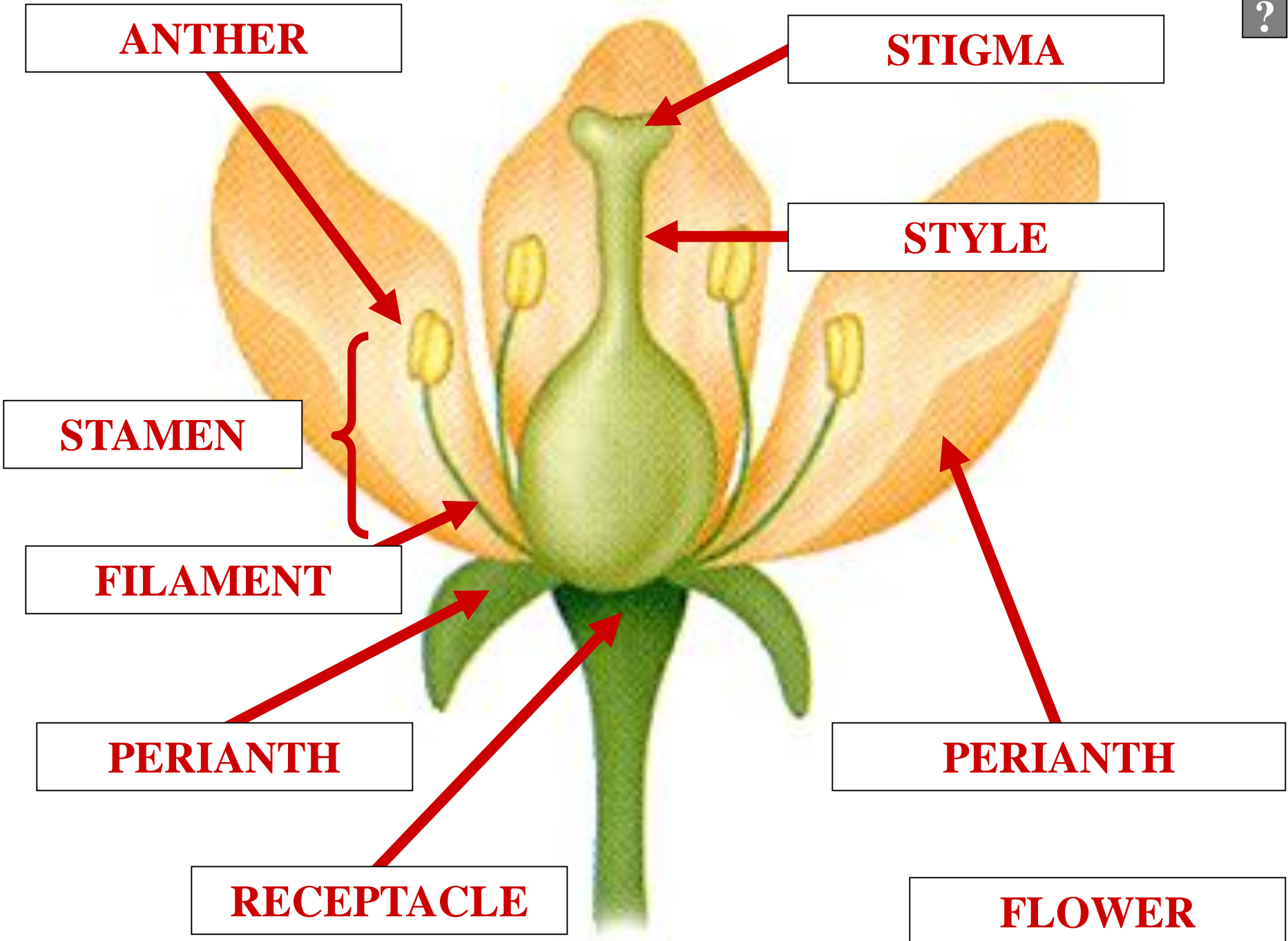
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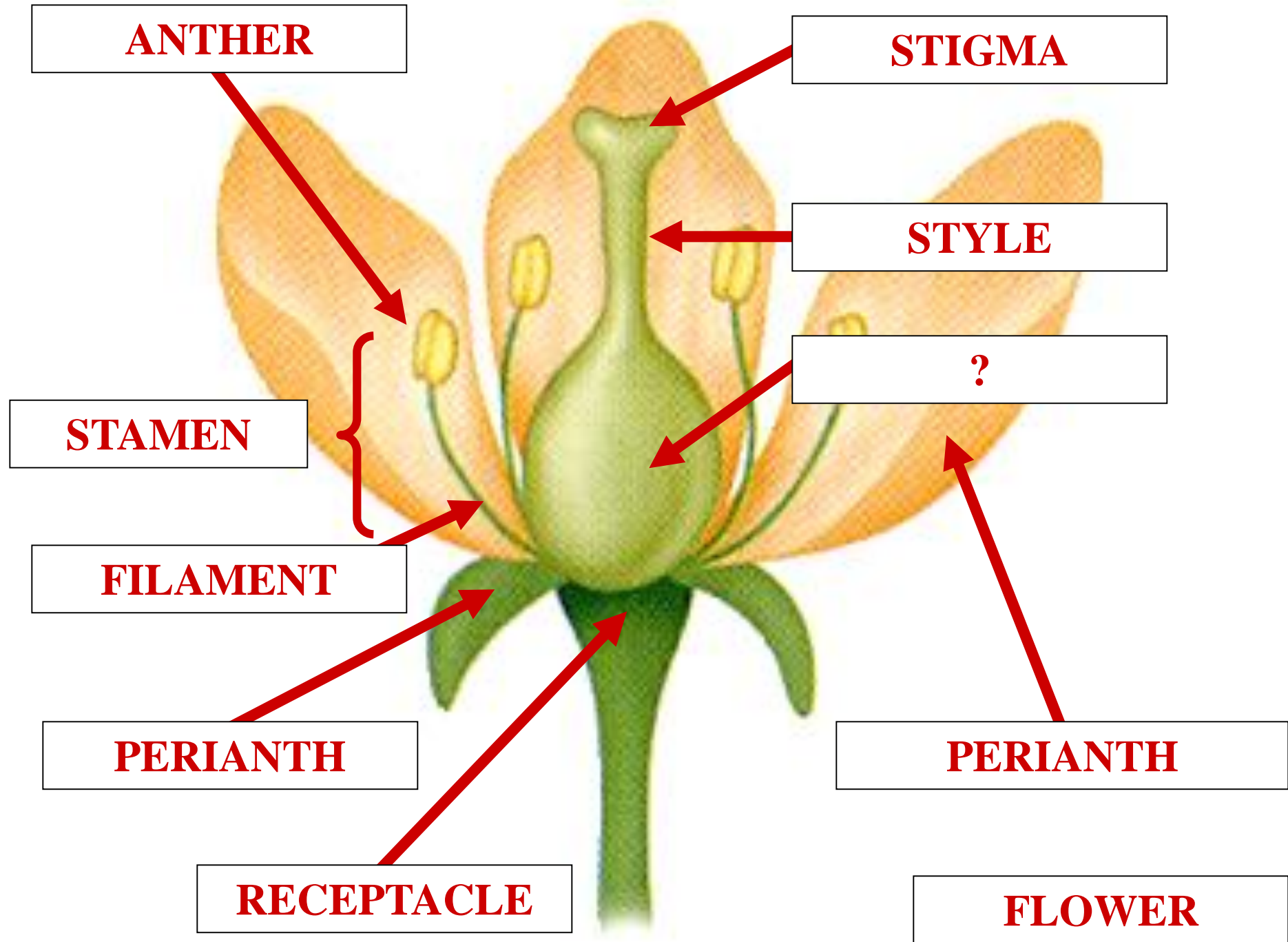
**PERIANTH**

**RECEPTACLE**

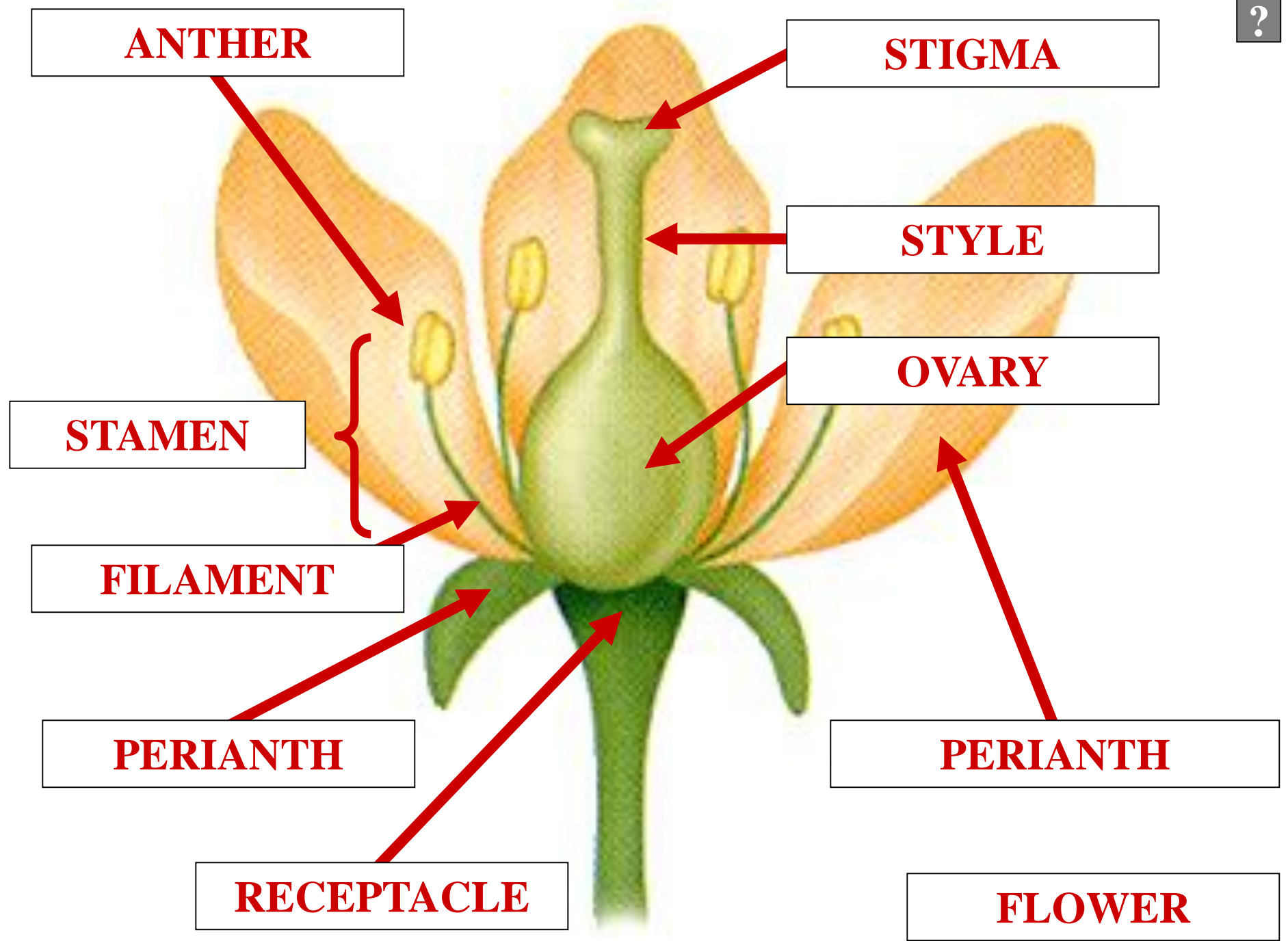
**PERIANTH**

**FLOWER**









**ANTHER**

**STAMEN**

**FILAMENT**

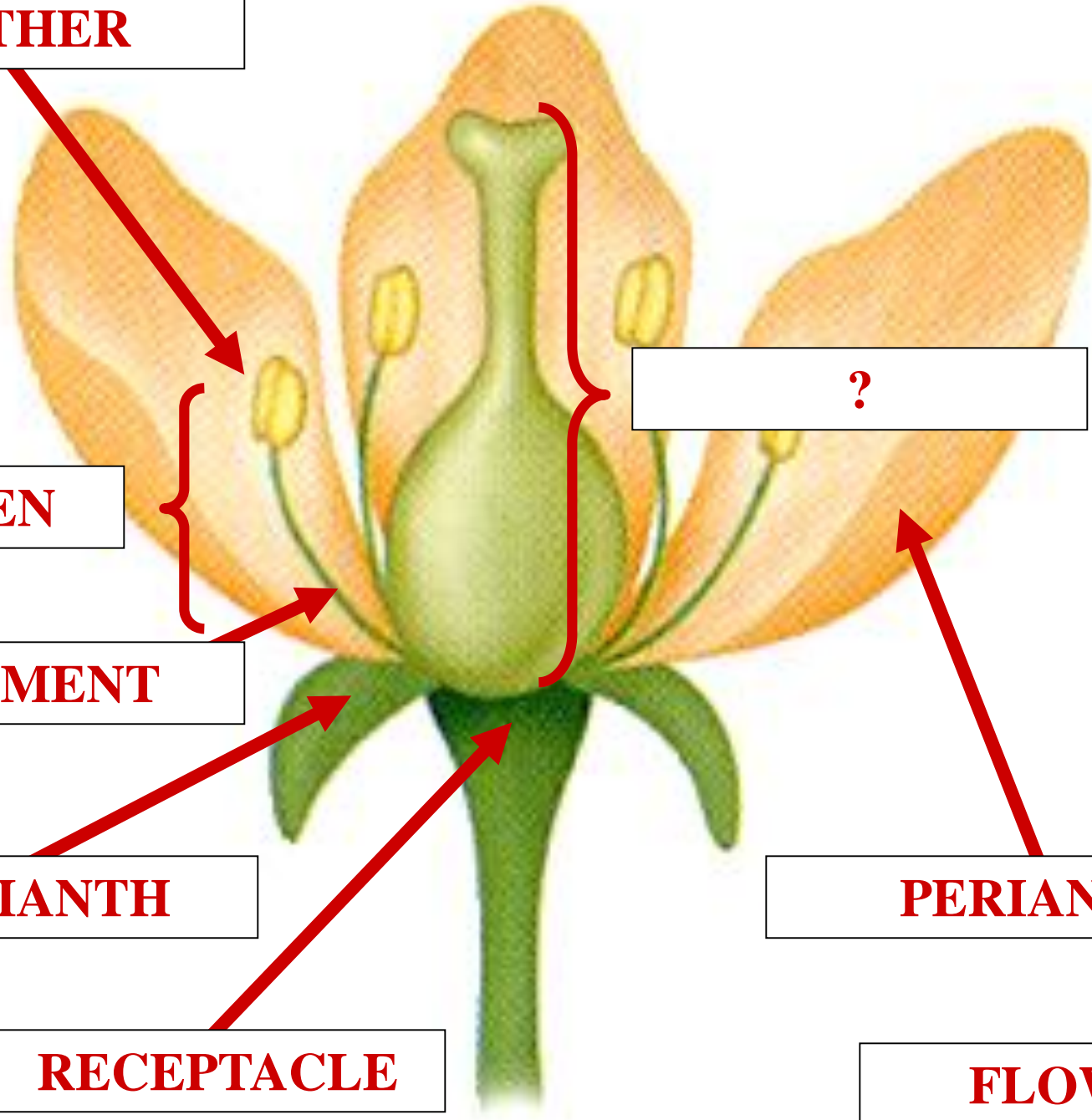
**PERIANTH**

**RECEPTACLE**

**?**

**PERIANTH**

**FLOWER**





**ANTHER**

**GYNOECIUM**

**STAMEN**

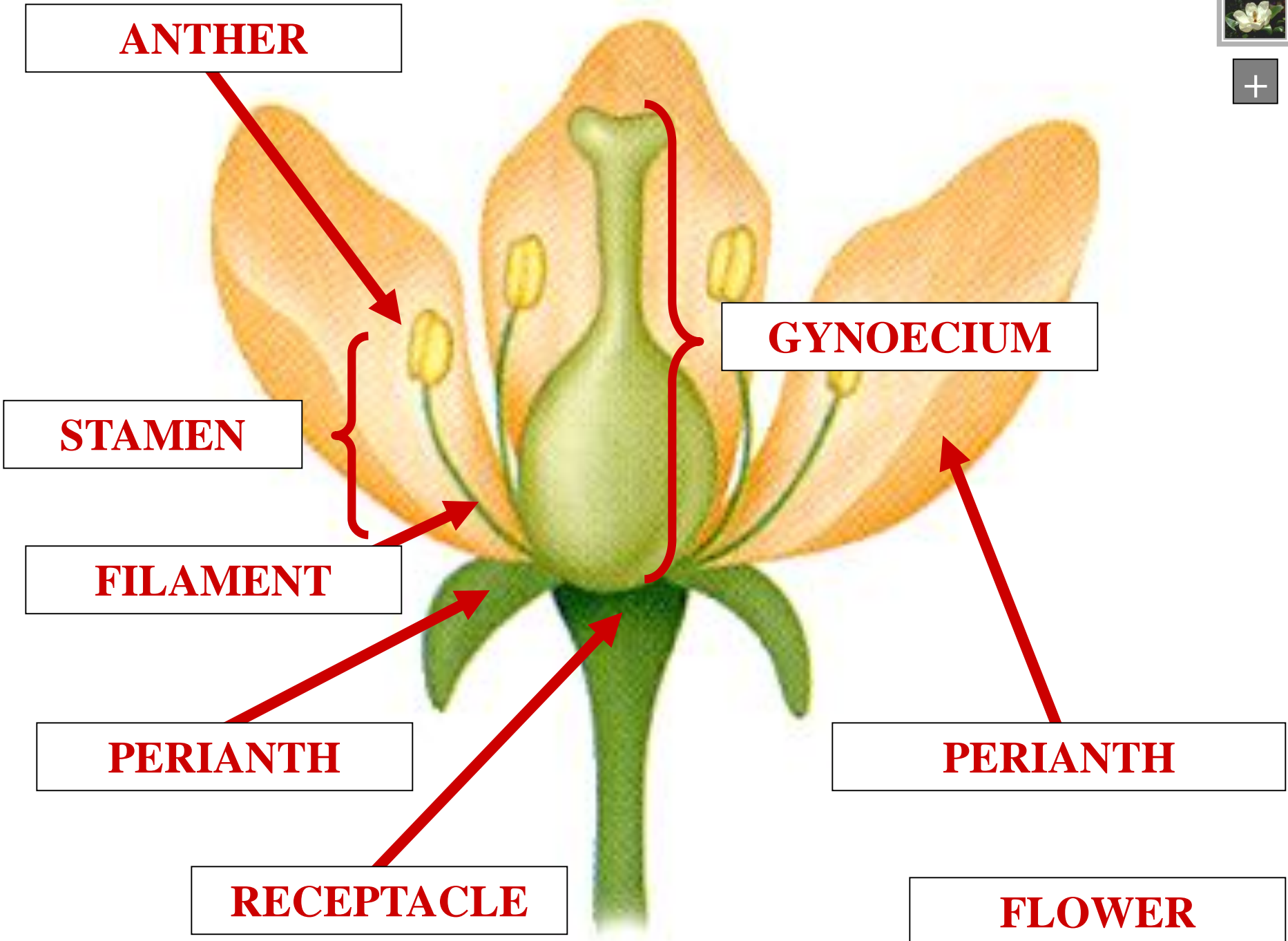
**FILAMENT**

**PERIANTH**

**RECEPTACLE**

**PERIANTH**

**FLOWER**



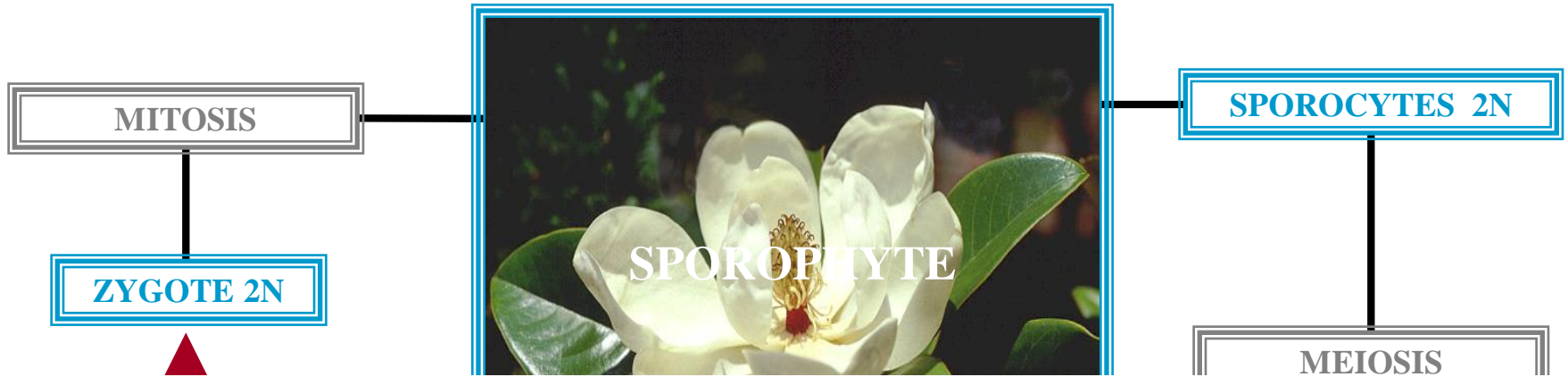


# ANGIOSPERM LIFE CYCLE

# ANGIOSPERM

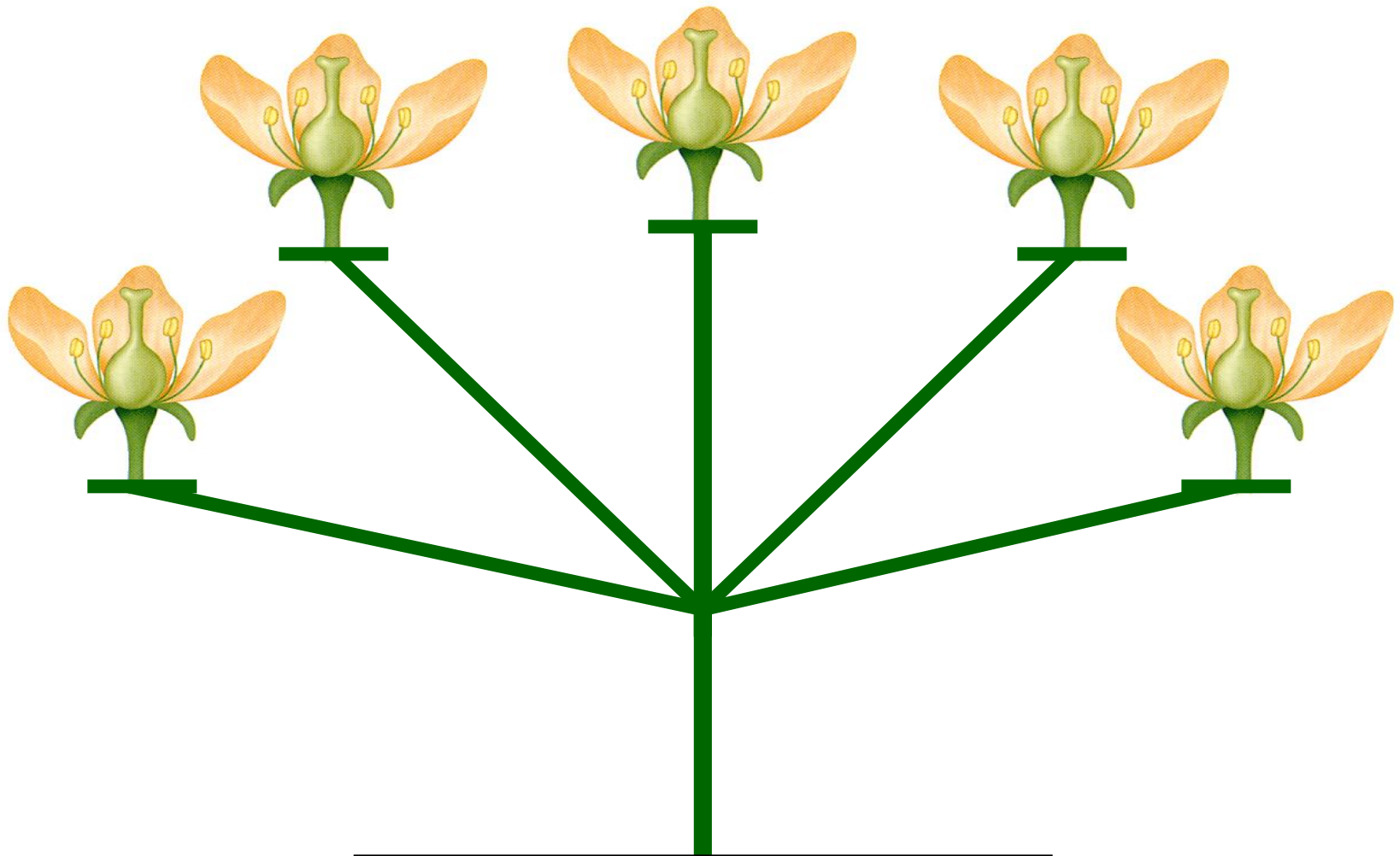


## HETEROMORPHIC SPORIC LIFE CYCLE

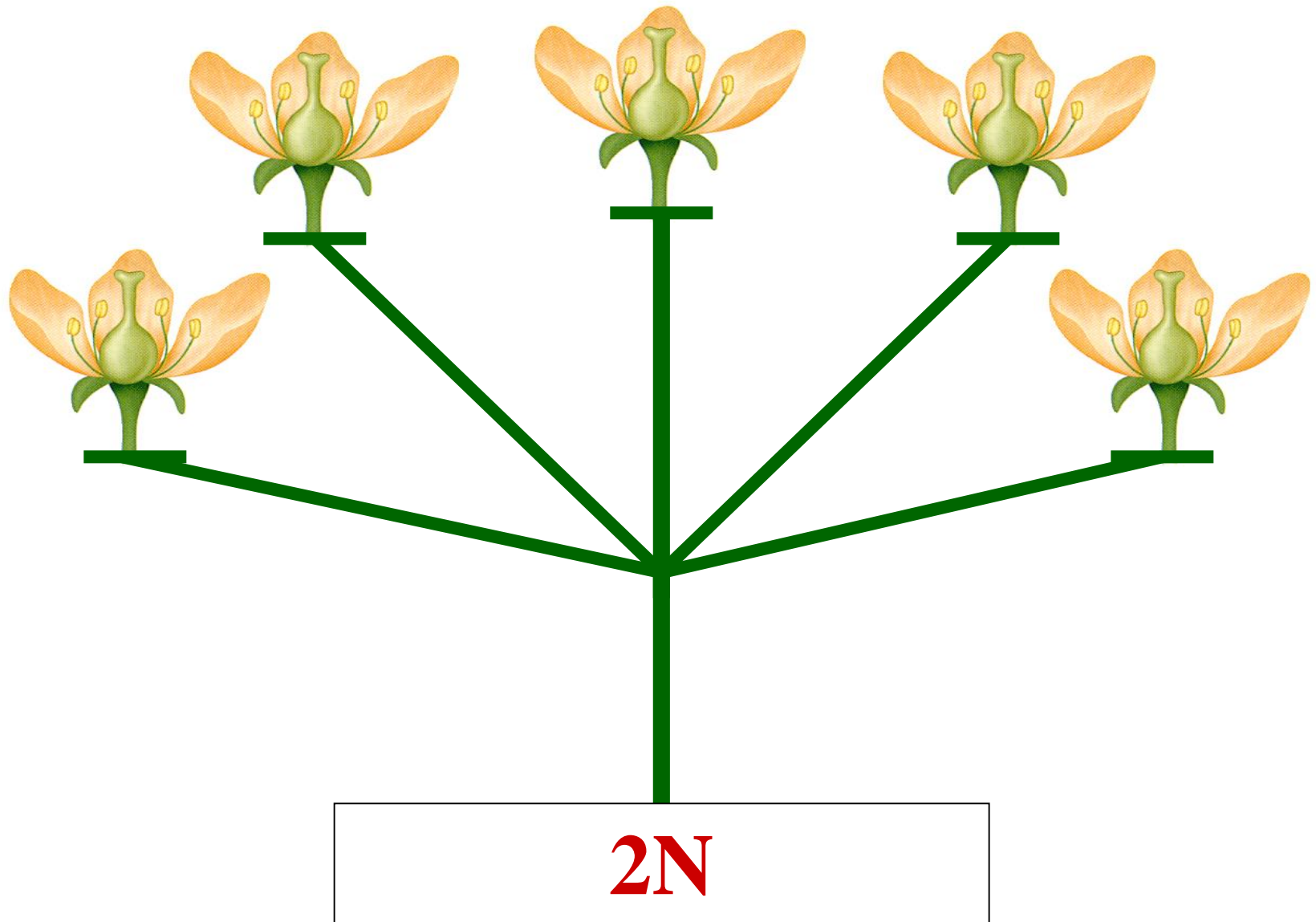


**!!! CONSULT PG 472-473!!!**





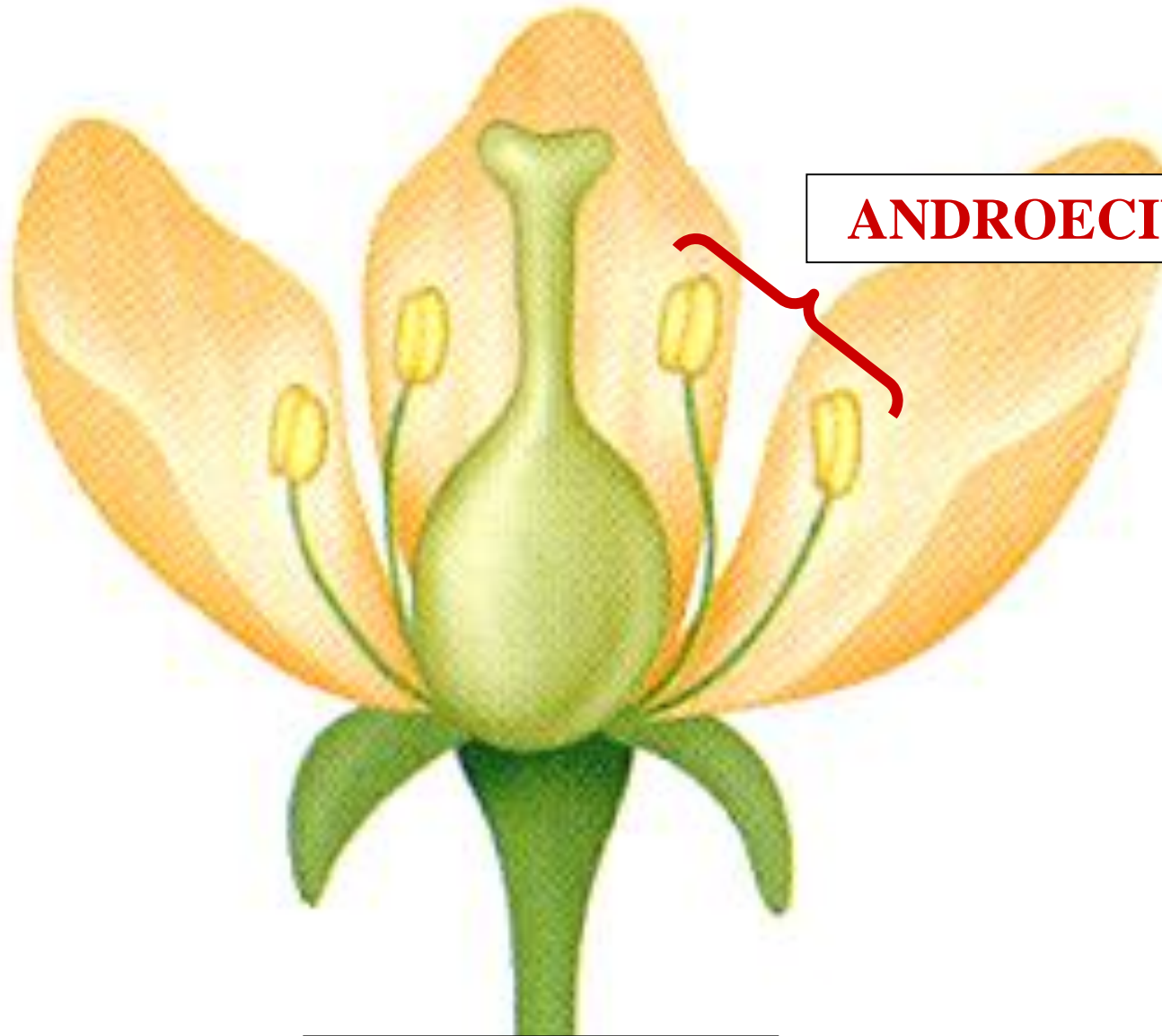
**SPOROPHYTE**





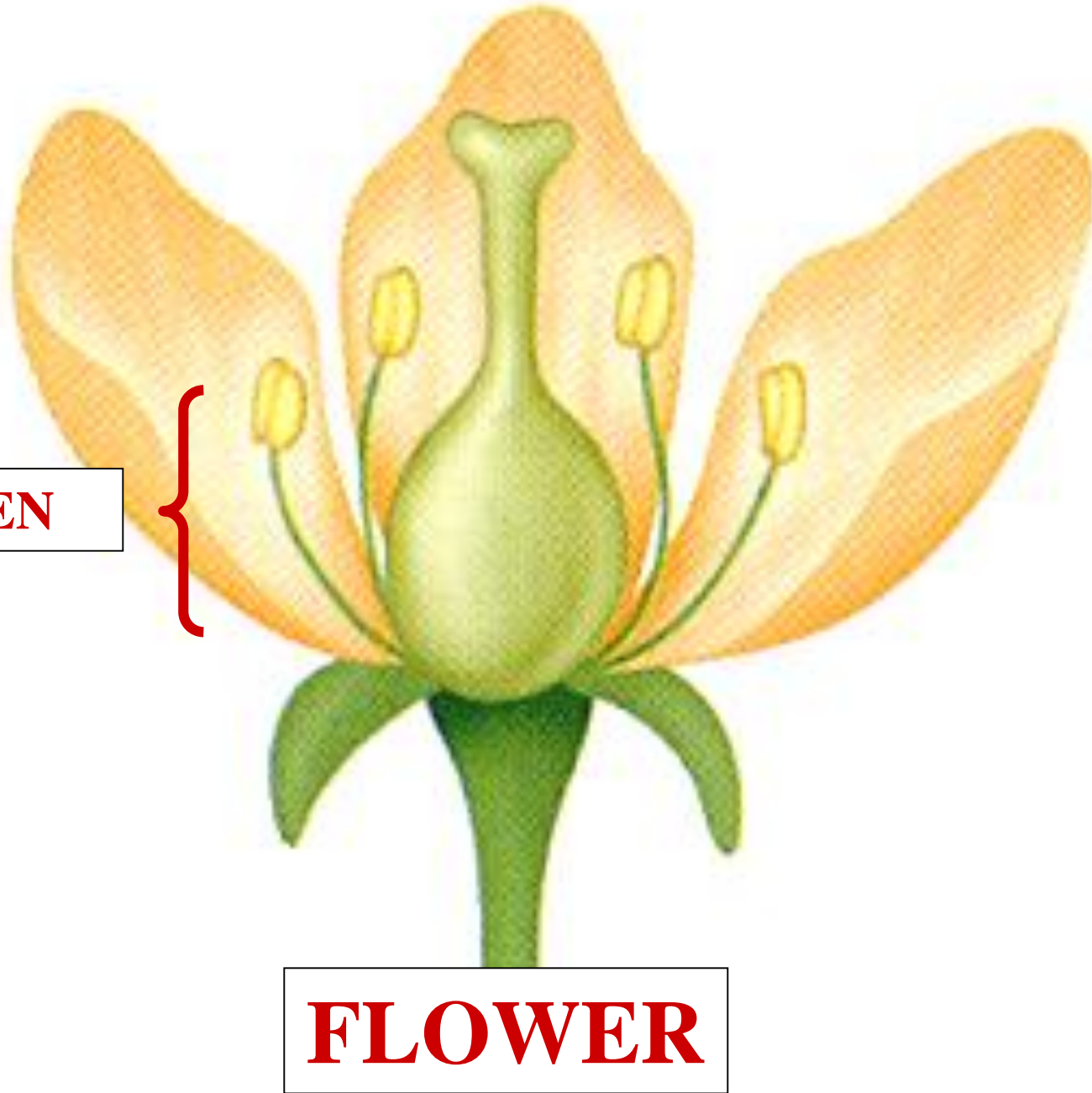
**FLOWER**





**ANDROECIUM**

**FLOWER**



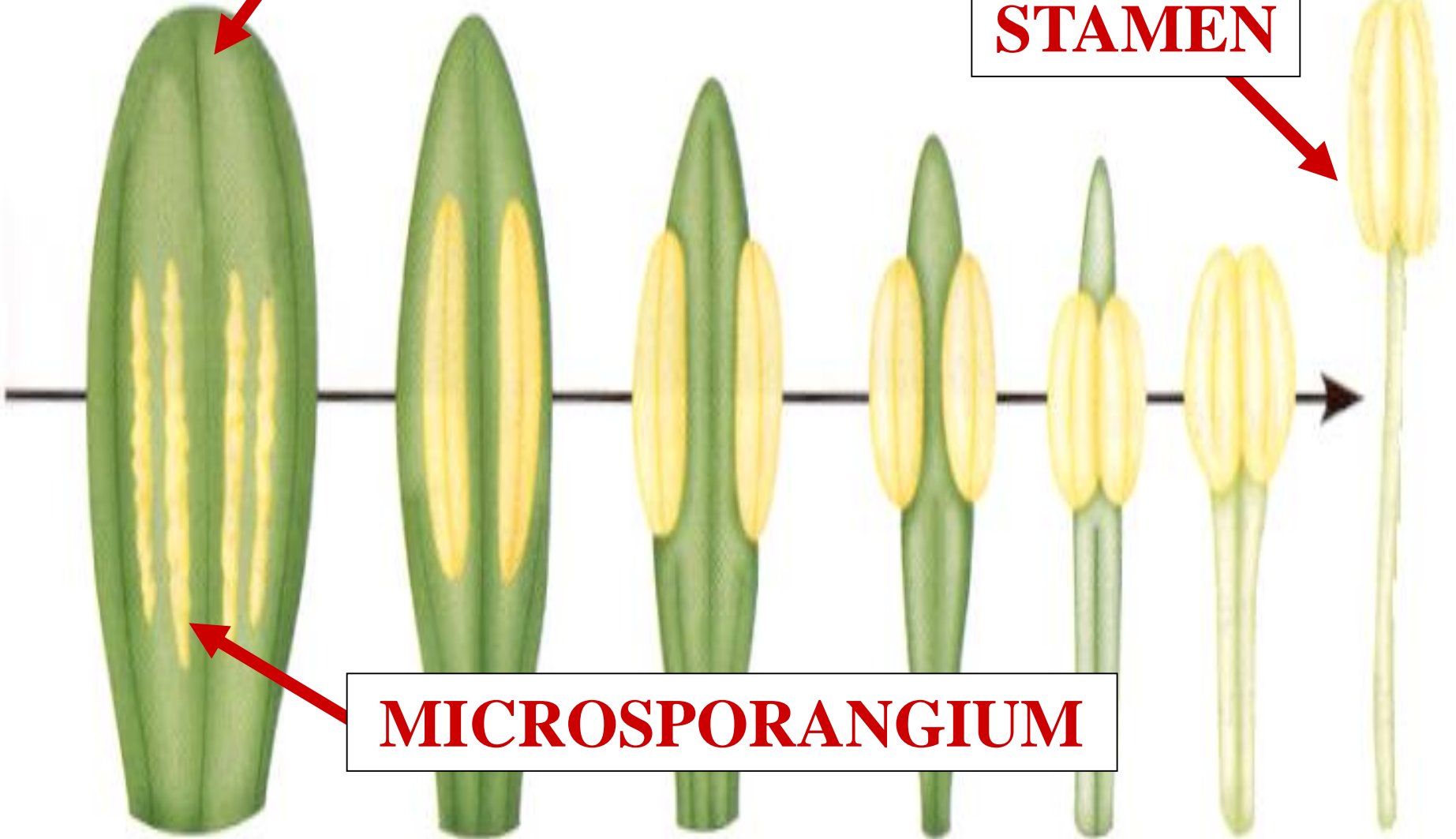
**STAMEN**

**FLOWER**

**LEAF**

**STAMEN**

**MICROSPORANGIUM**

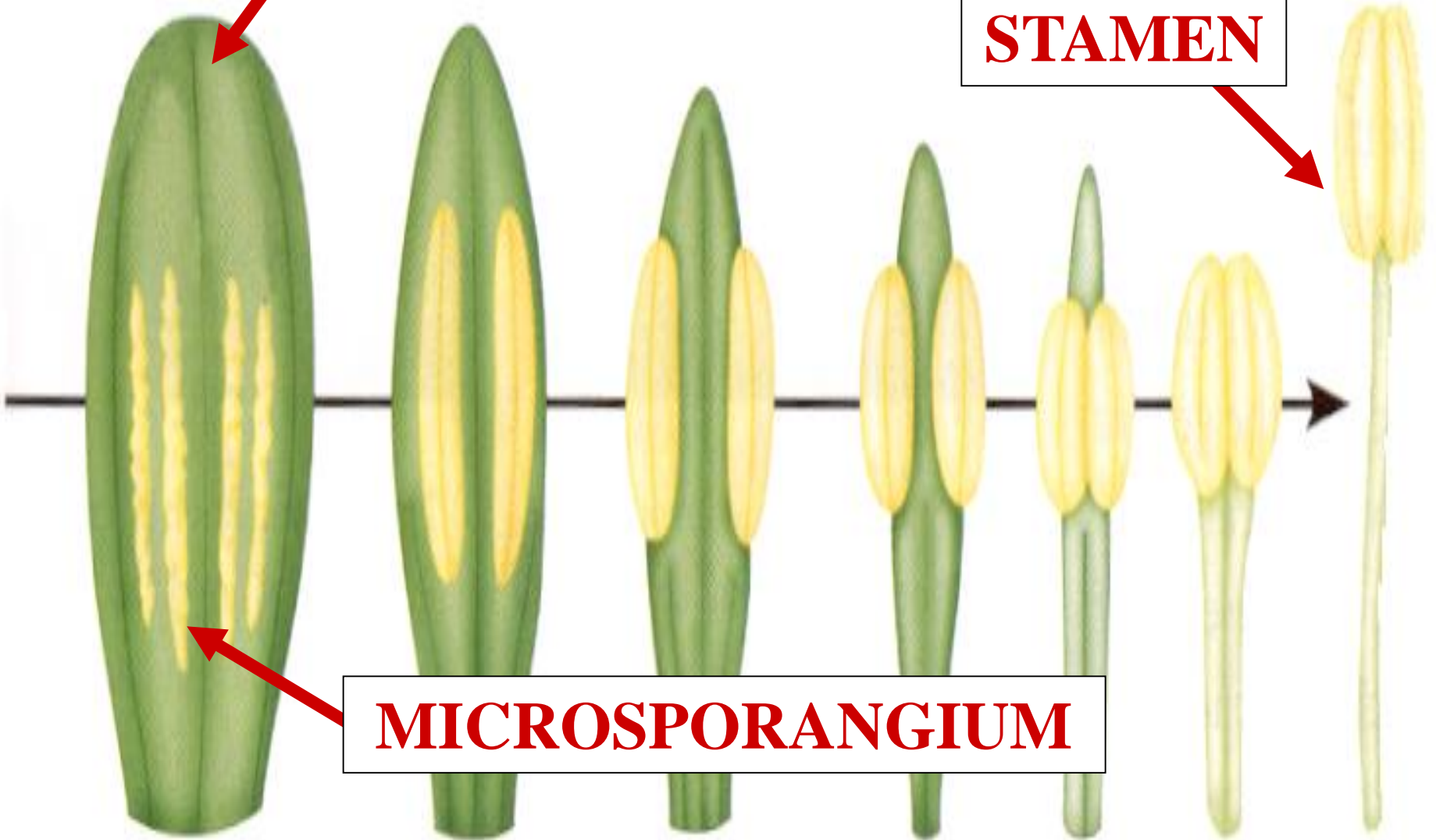


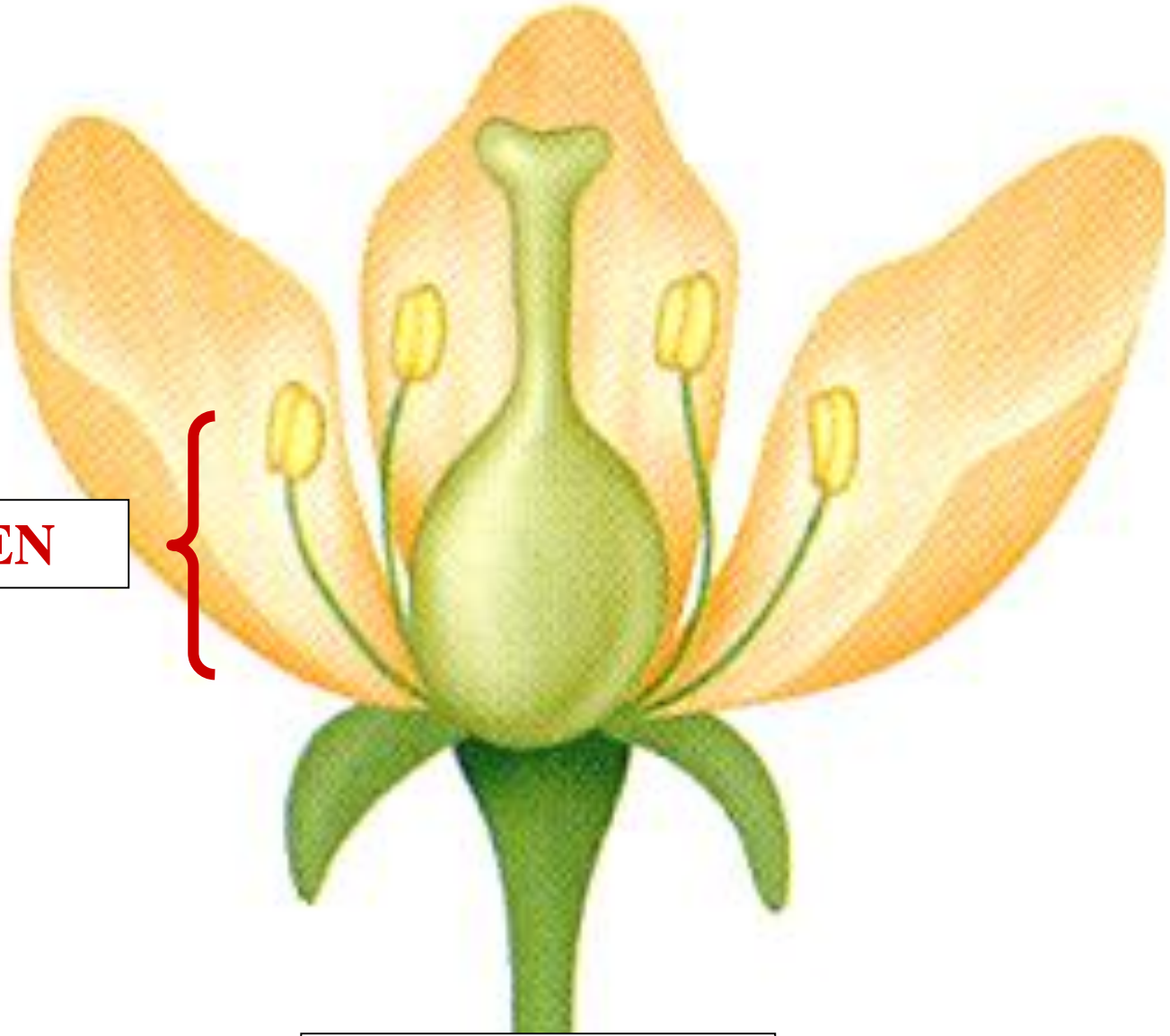


**MICROSPOROPHYLL**

**STAMEN**

**MICROSPORANGIUM**



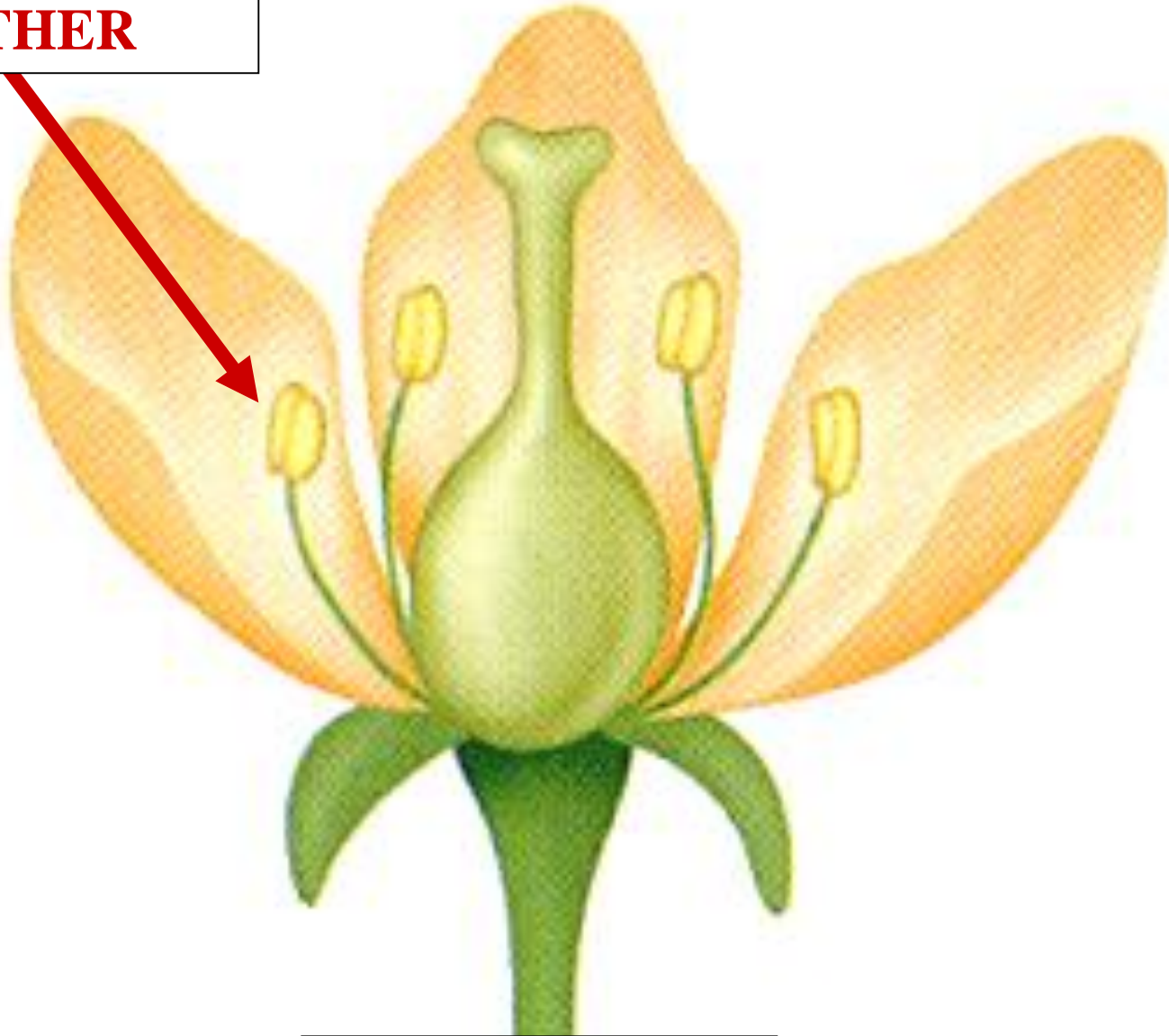


**STAMEN**

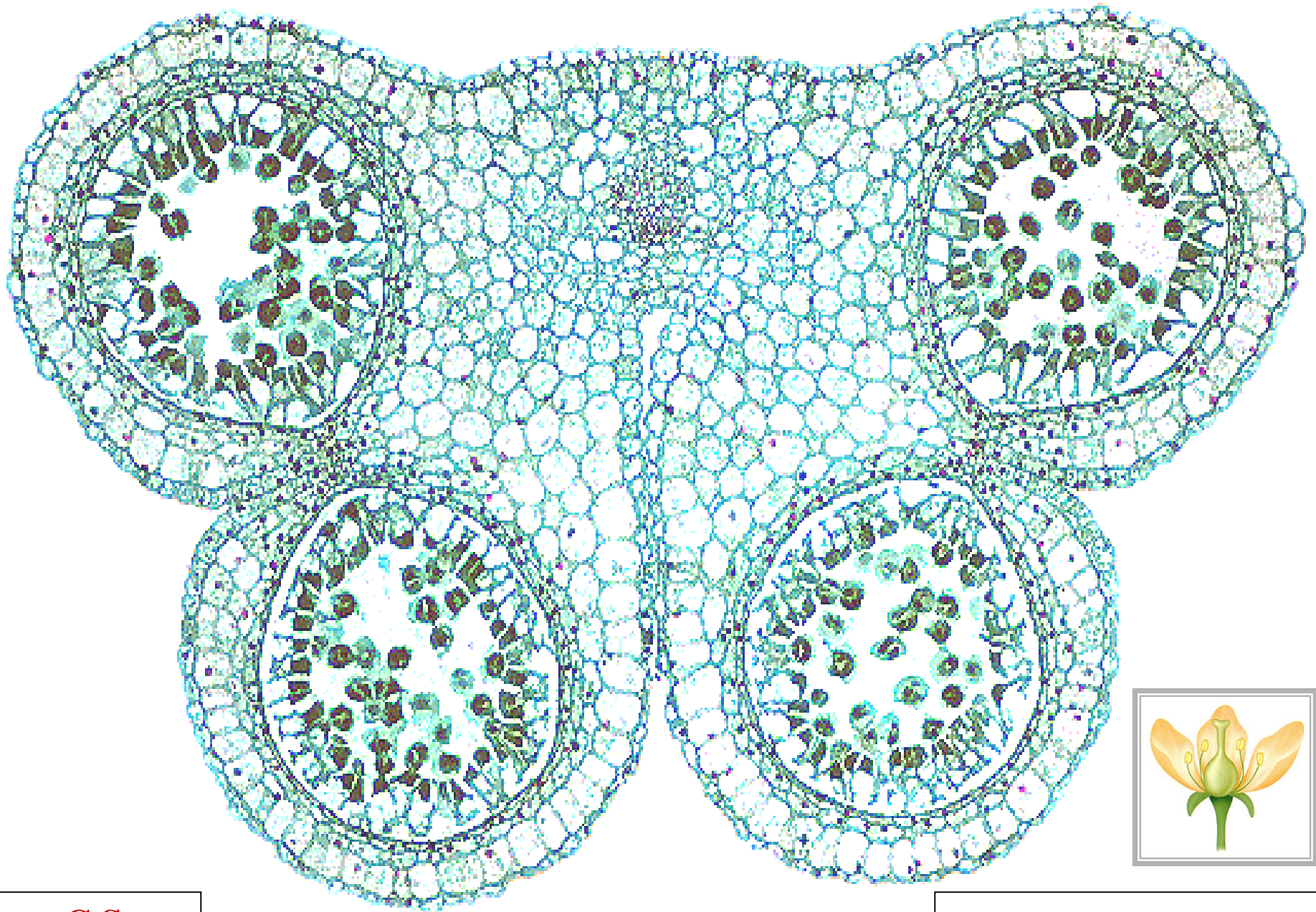
**FLOWER**



**ANTHER**

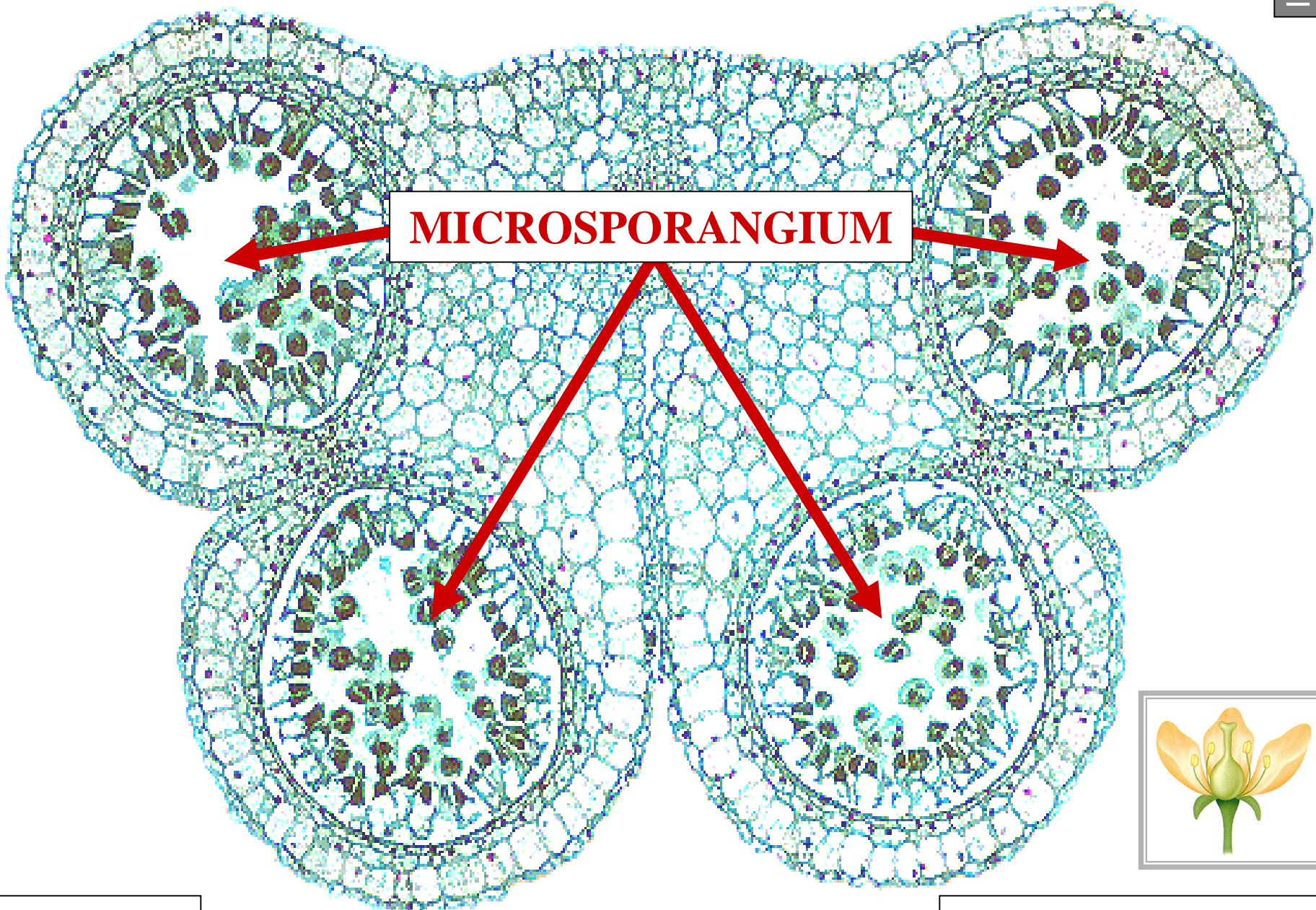


**FLOWER**



**C.S.**

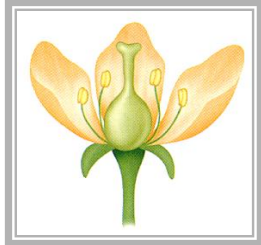
**ANTHER**



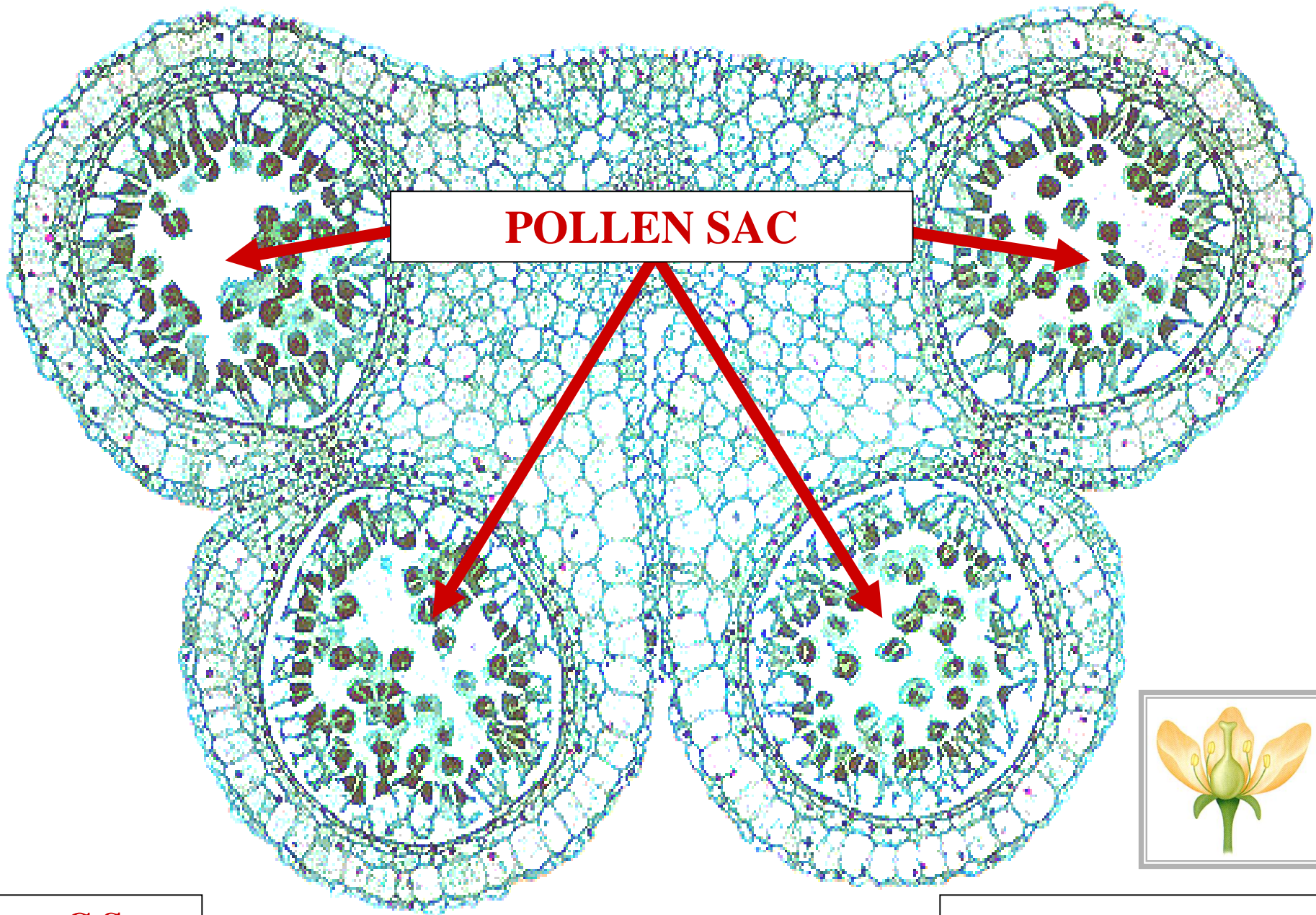
**MICROSPORANGIUM**

**C.S.**

**ANTHER**



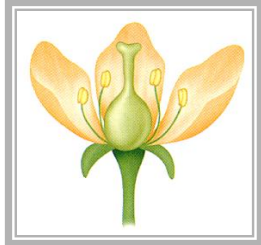




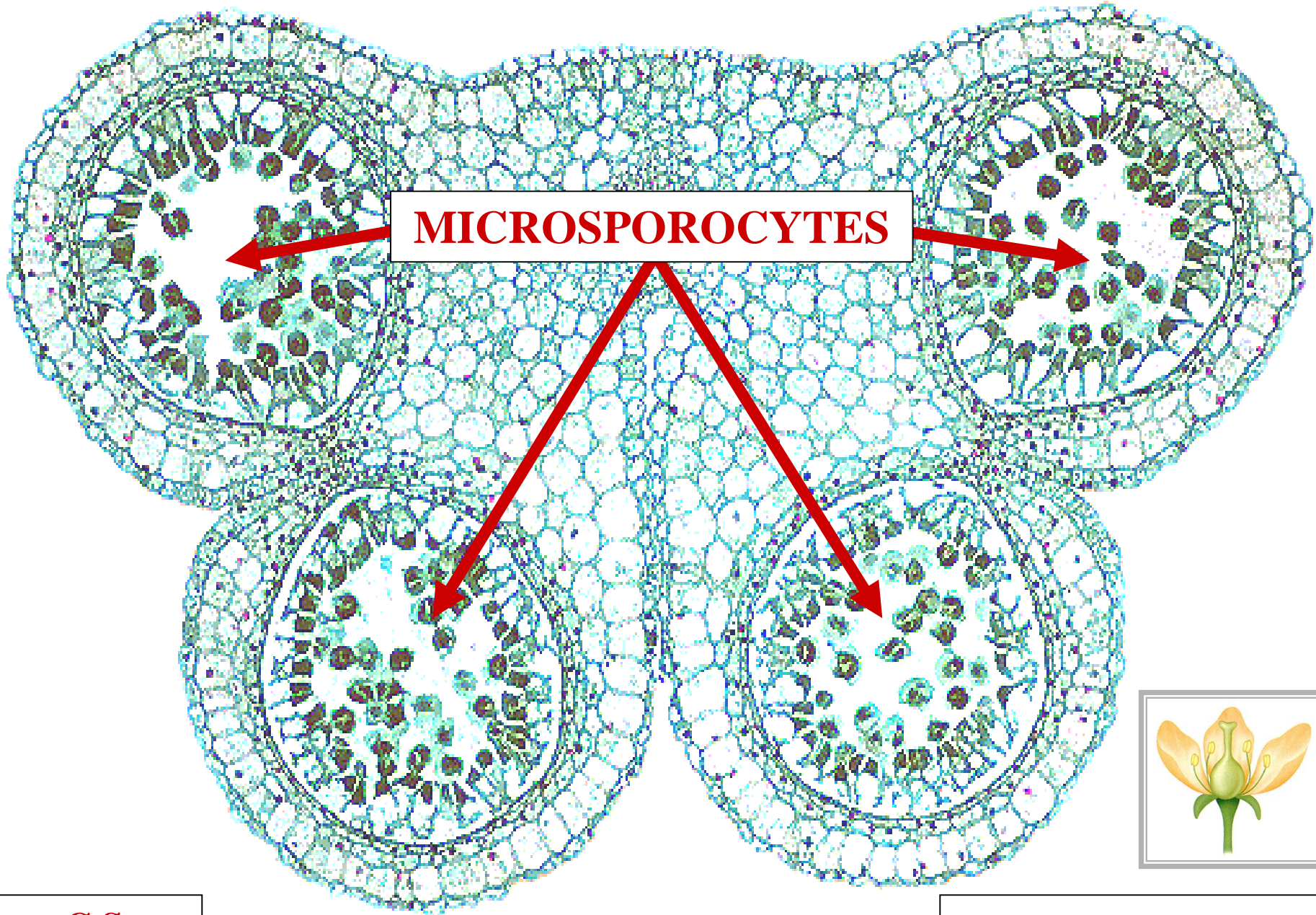
**POLLEN SAC**

**C.S.**

**ANTHER**

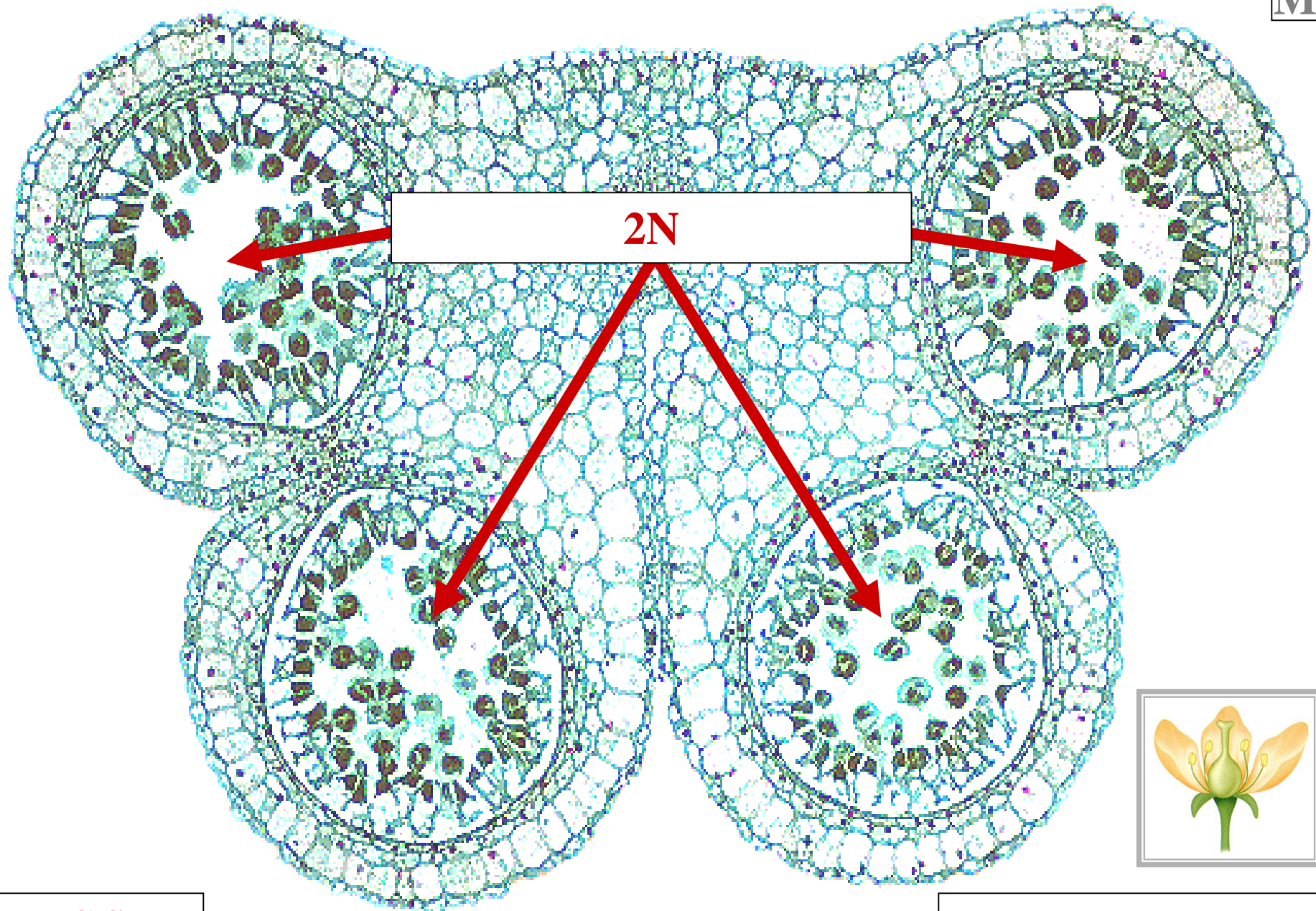


**MICROSPOROCYTES**



**C.S.**

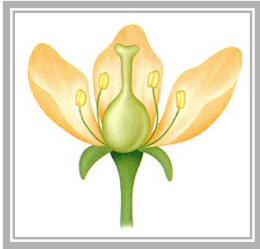
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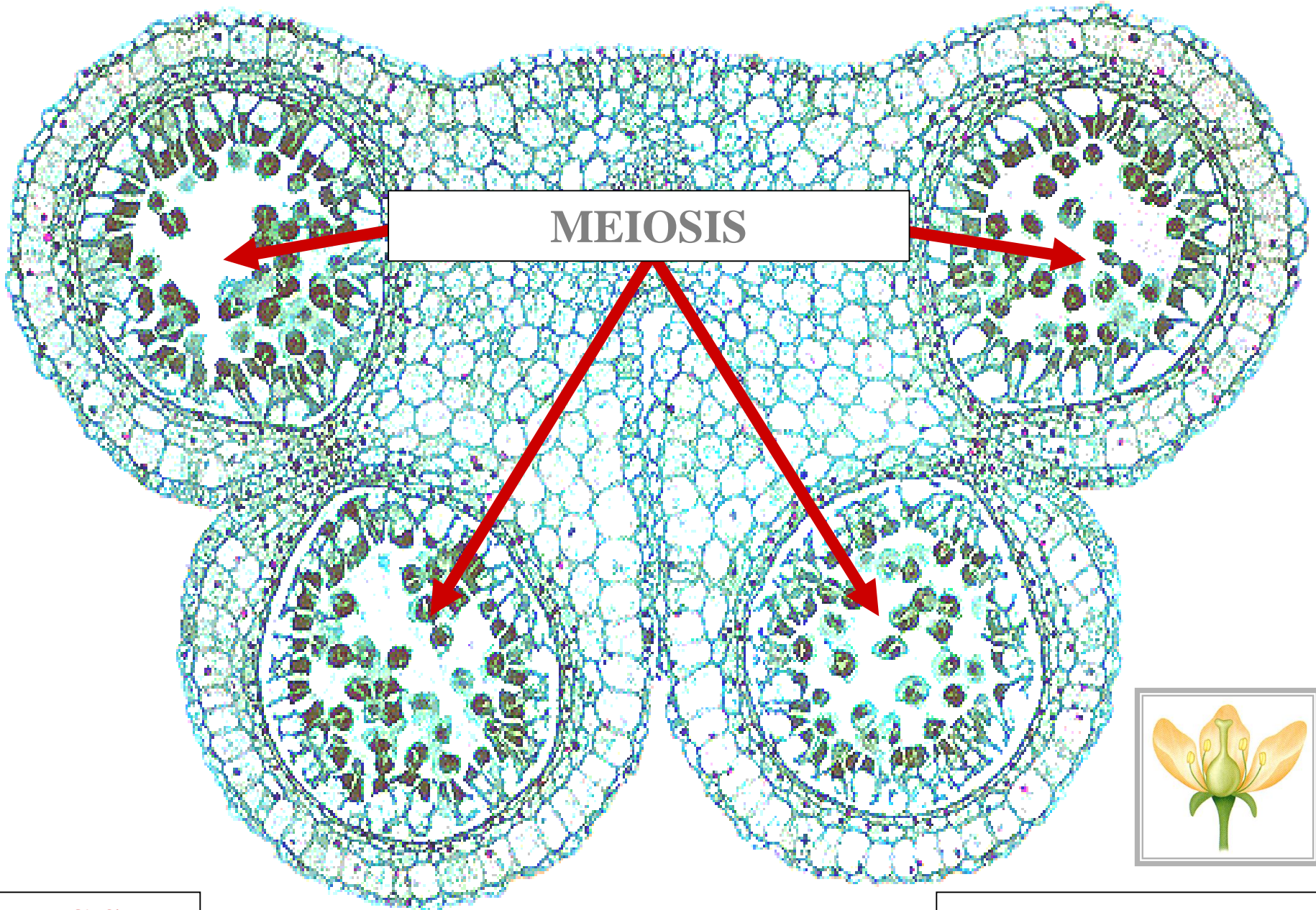


2N

C.S.

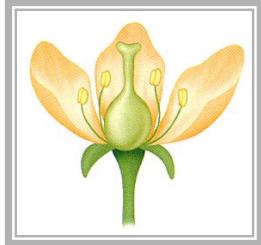
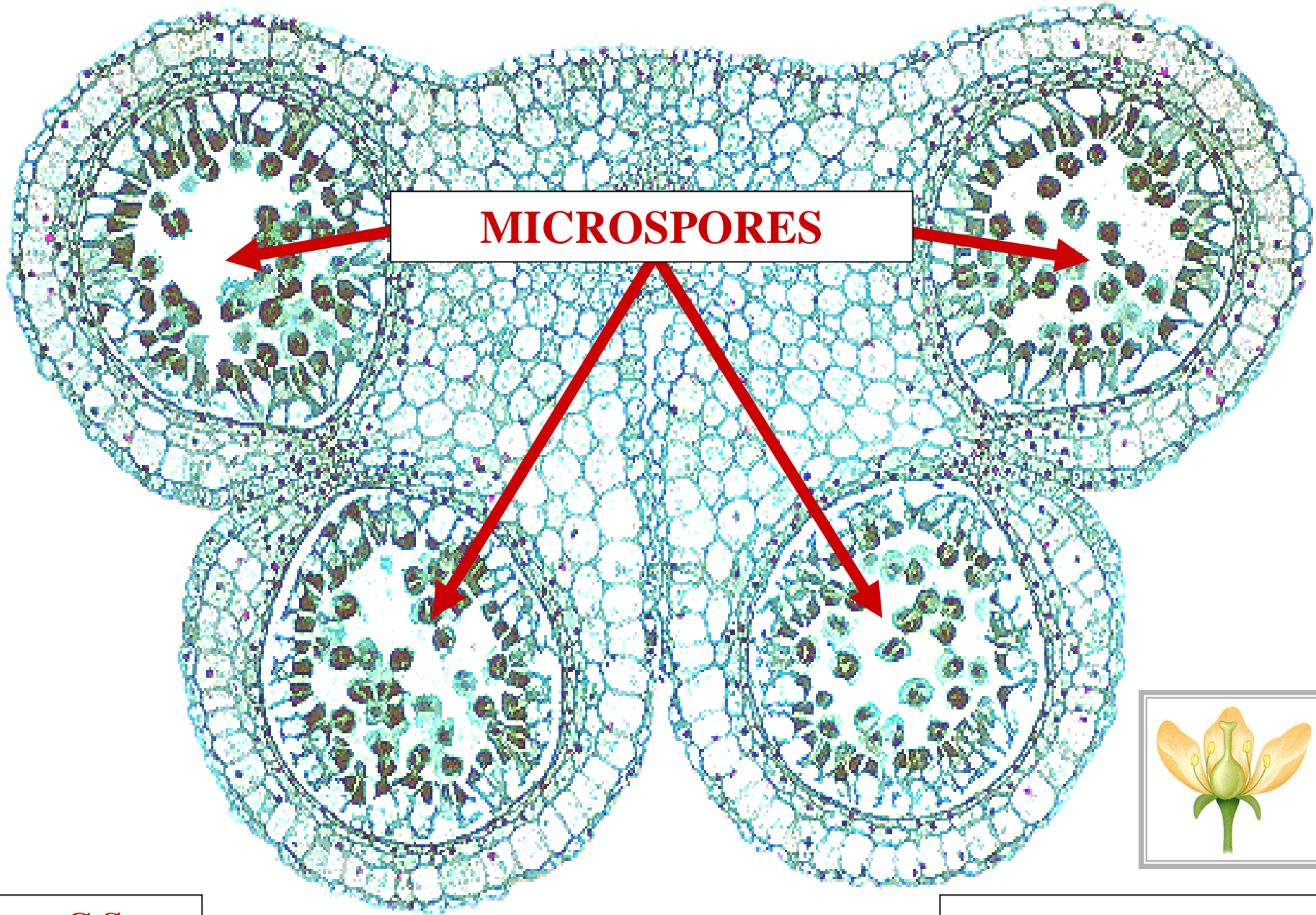
ANTHER





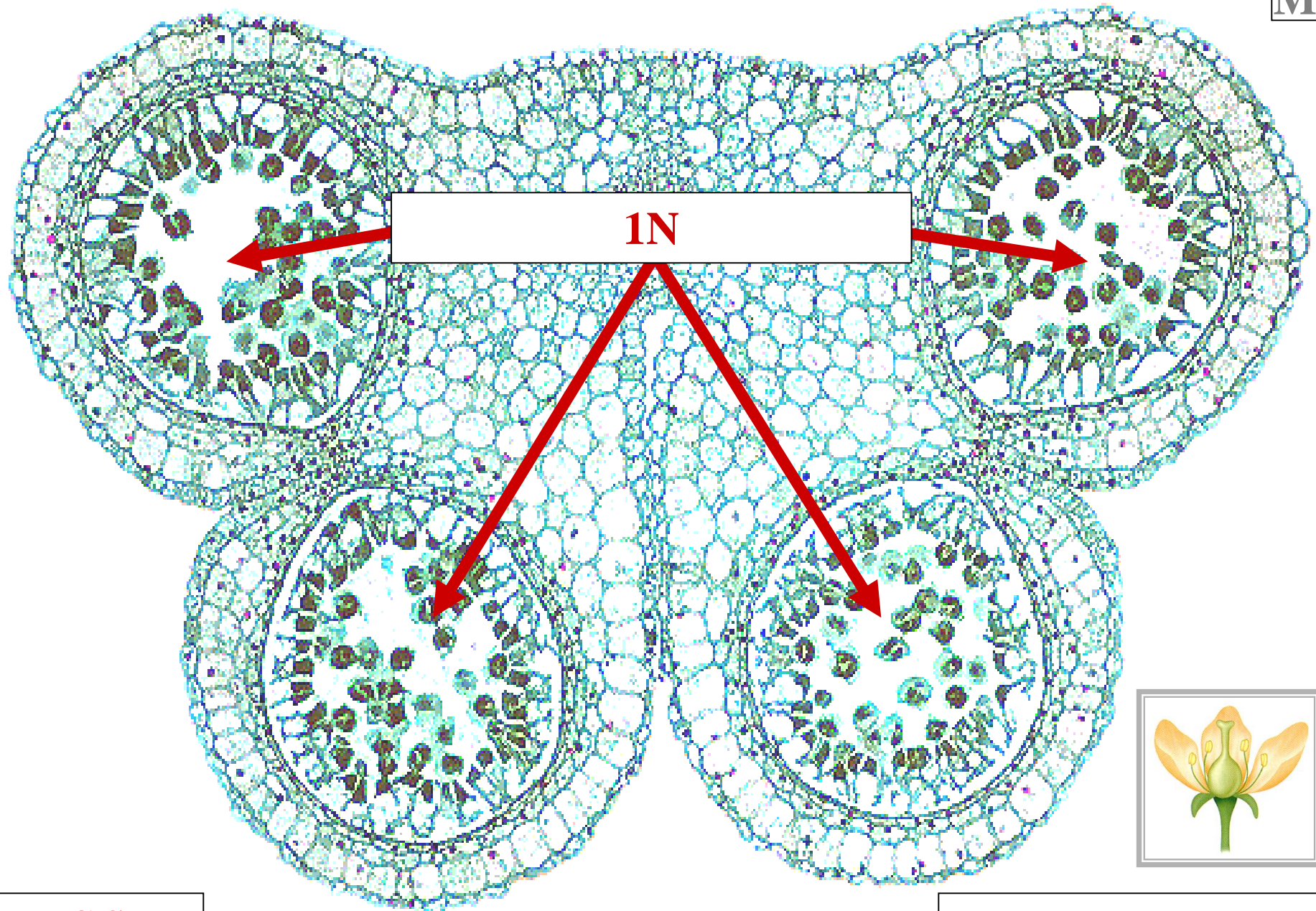
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**ANTHER**



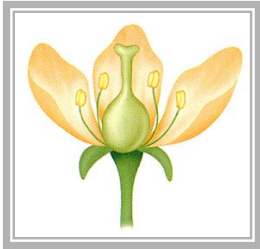
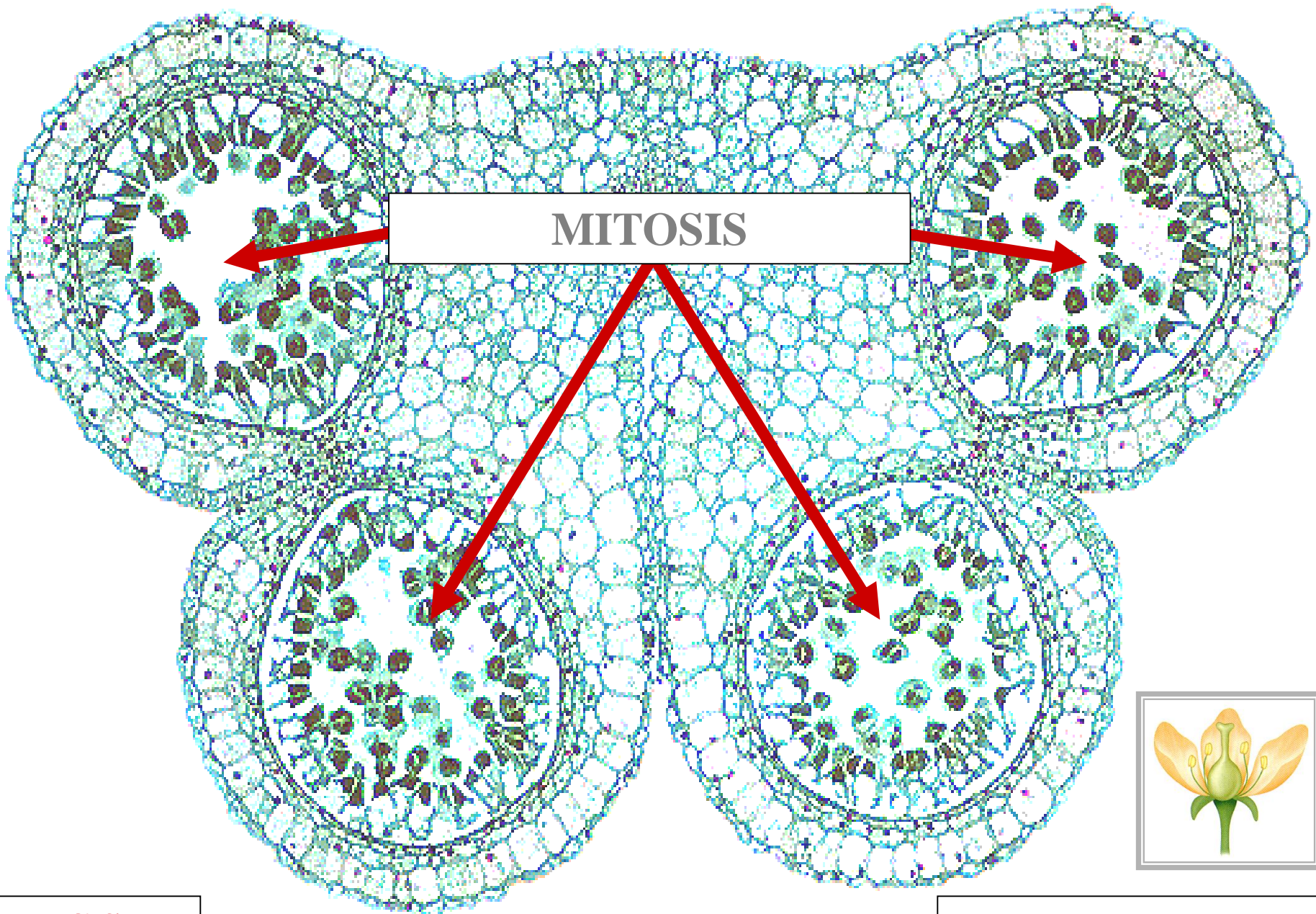
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**ANTHER**



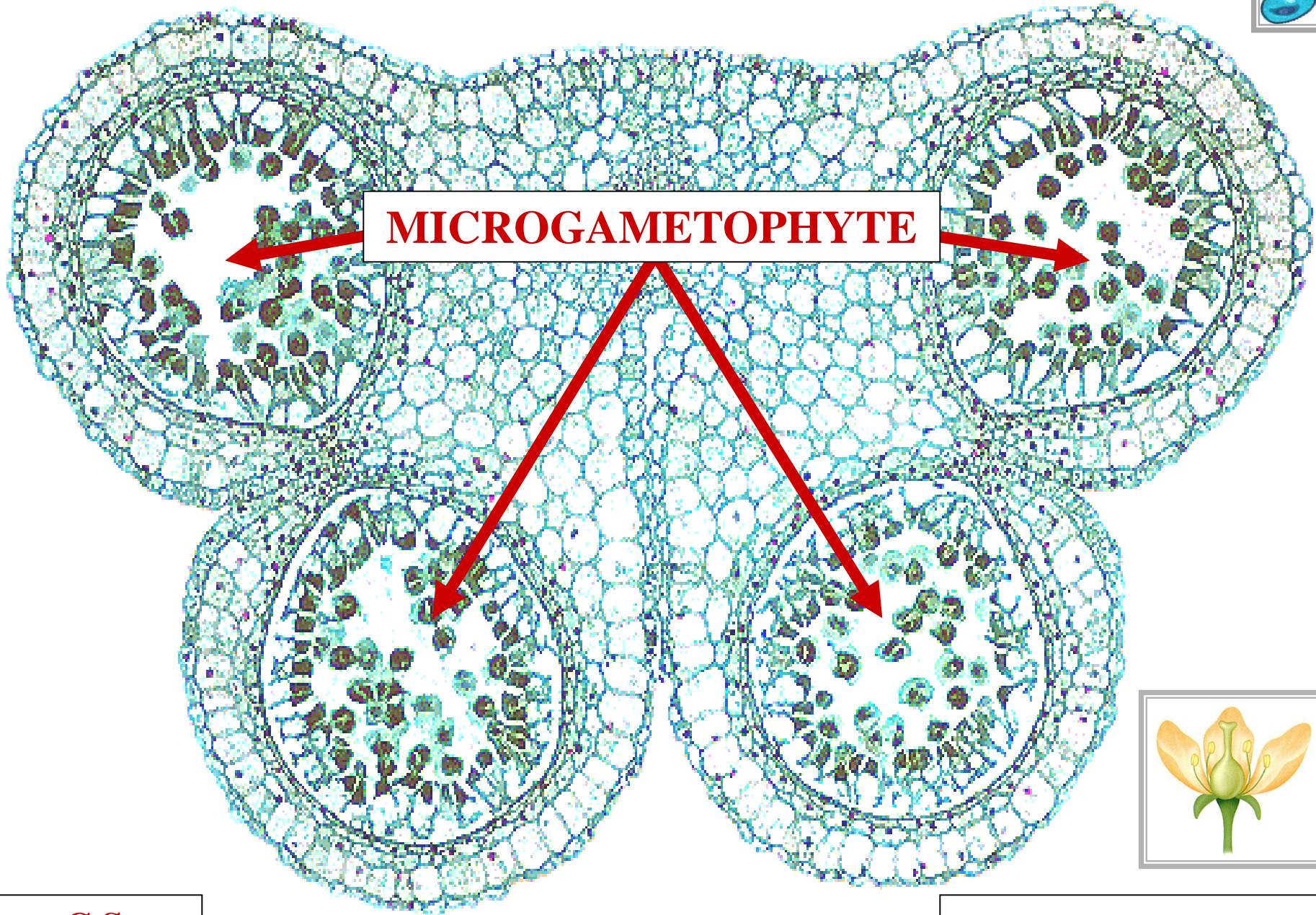
C.S.

ANTHER



**C.S.**

**ANTHER**

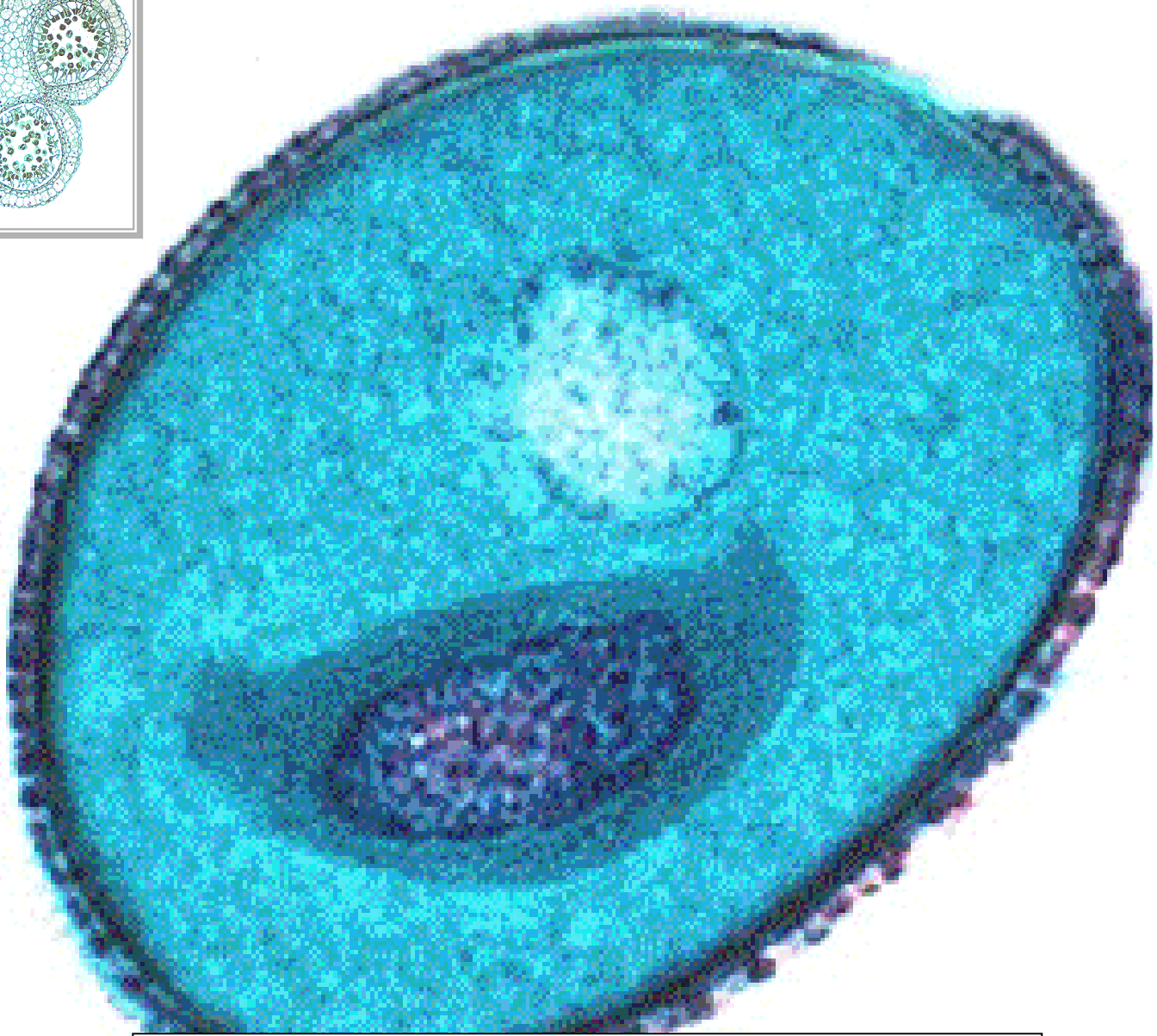
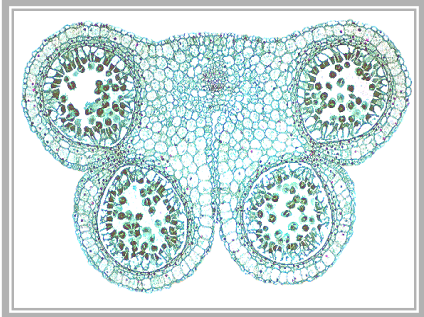


**C.S.**

**ANTHER**

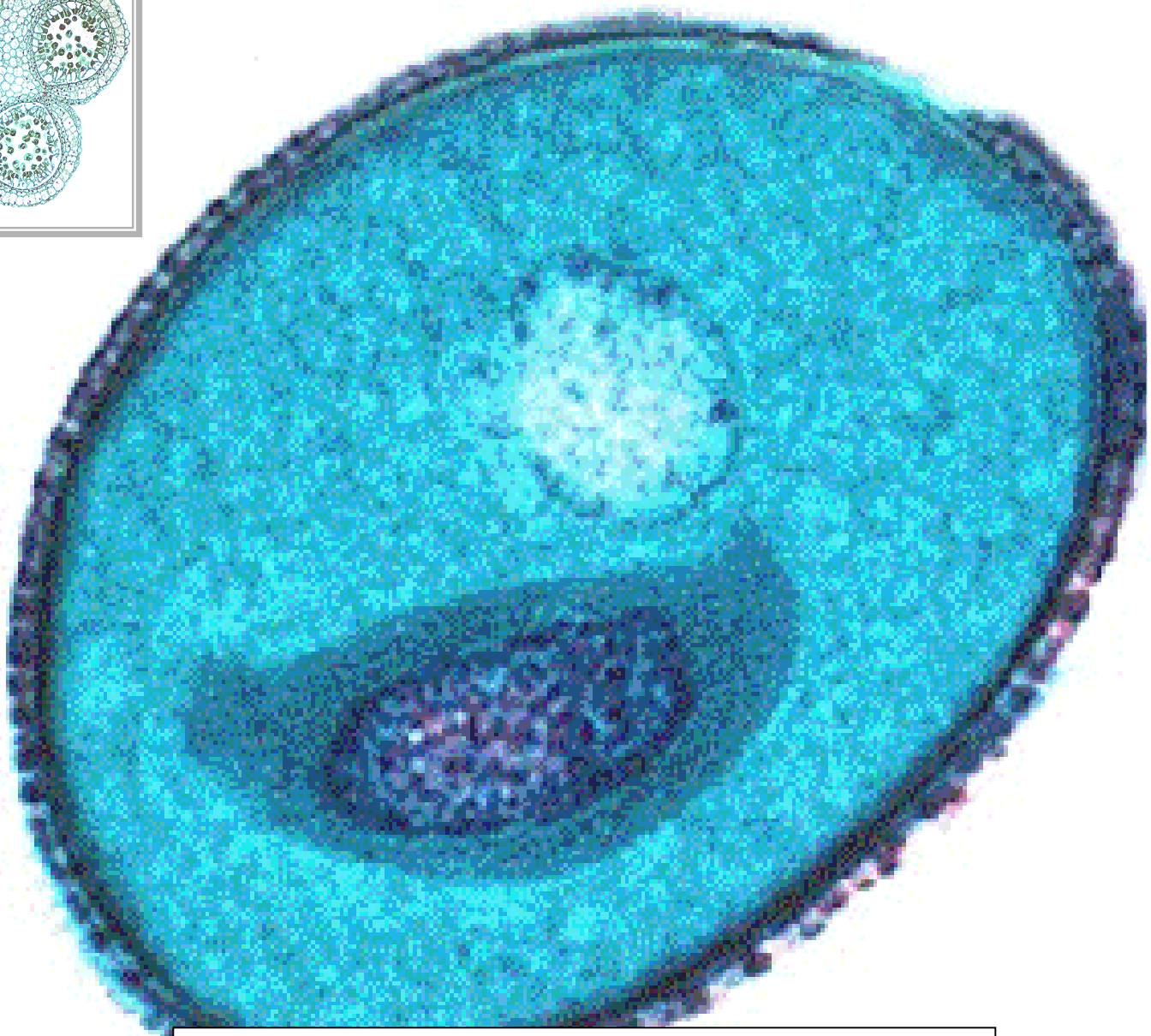
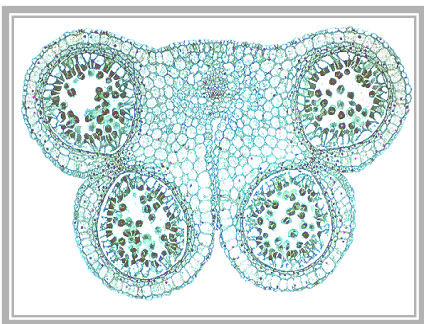






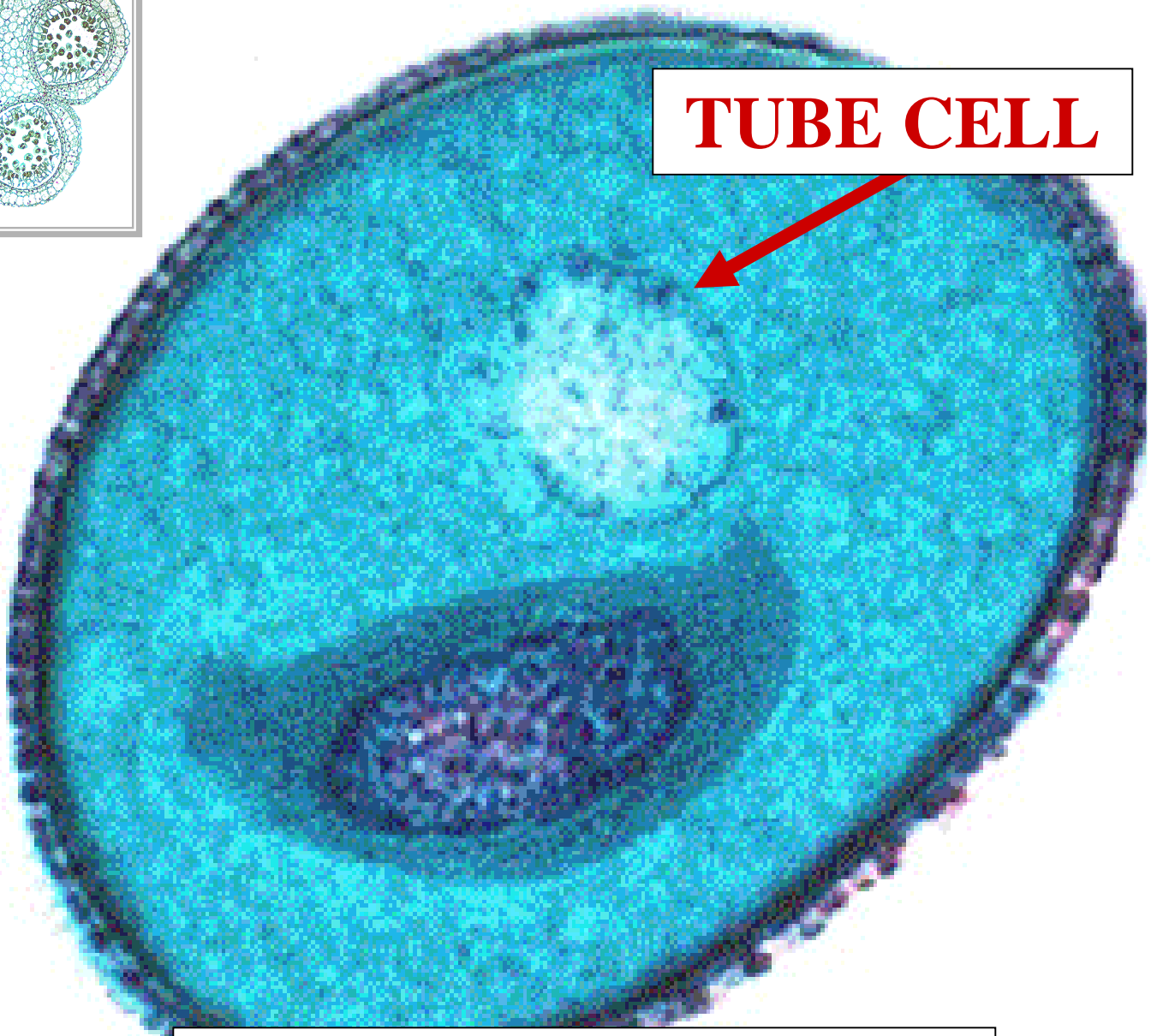
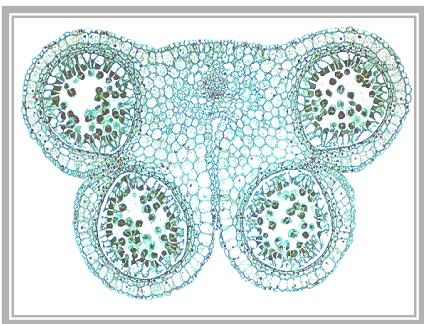
L.S.

**MICROGAMETOPHYTE**



**L.S.**

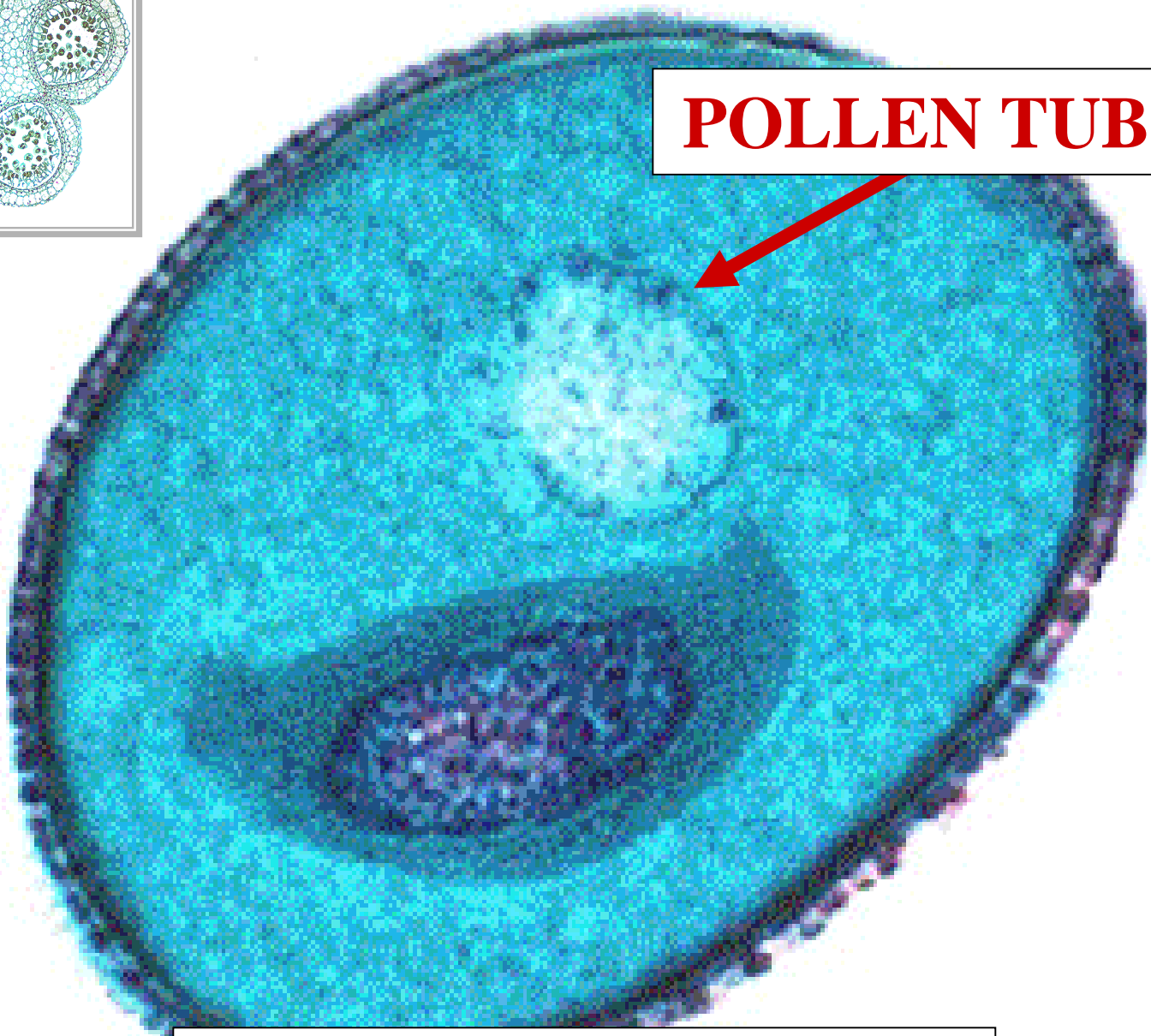
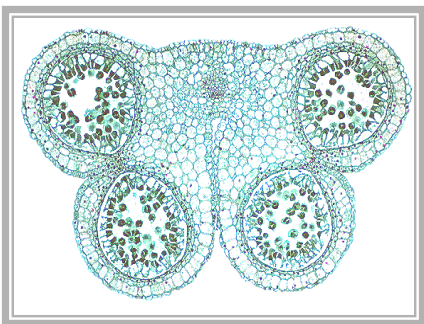
**POLLEN GRAIN**



**TUBE CELL**

**L.S.**

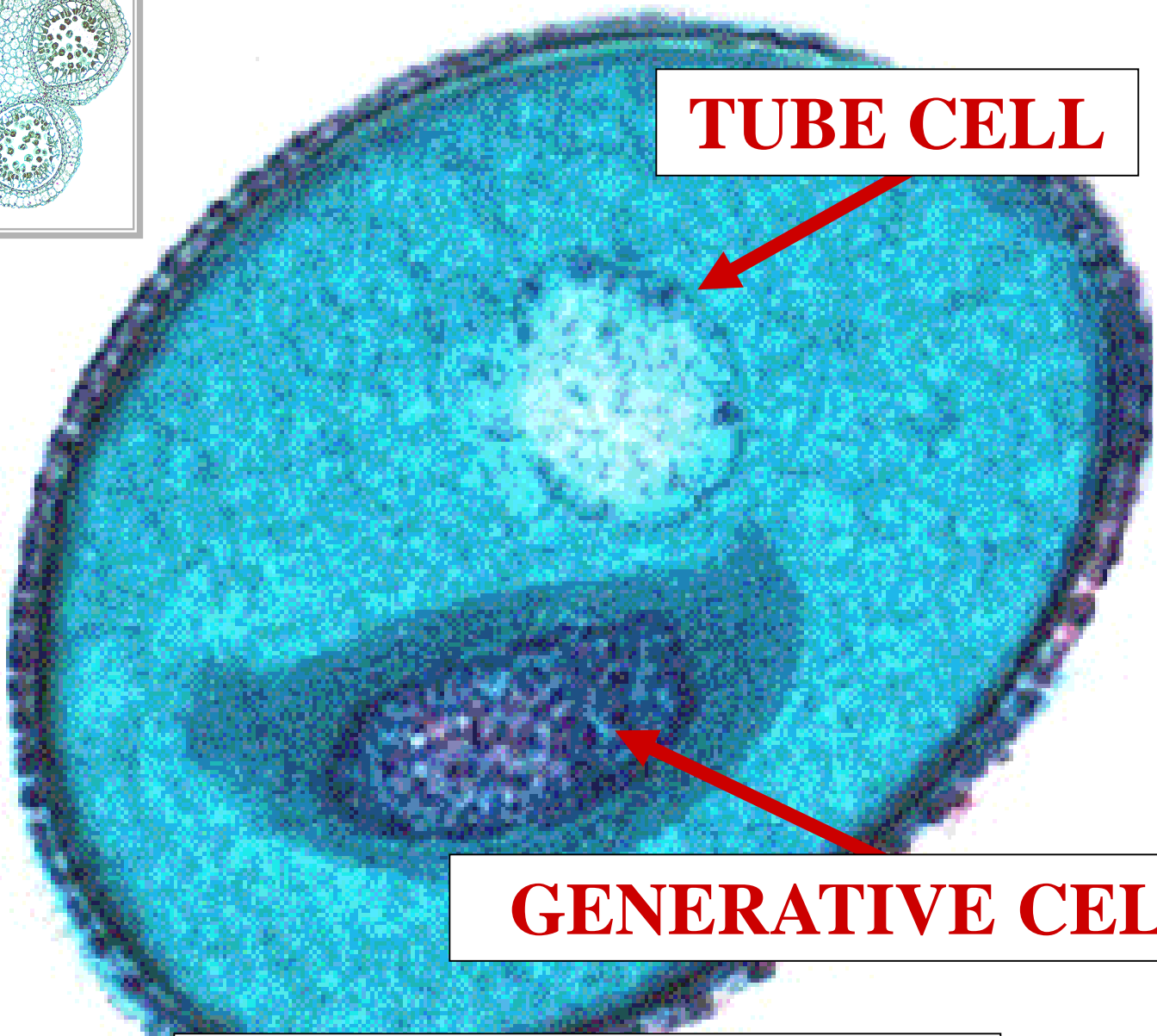
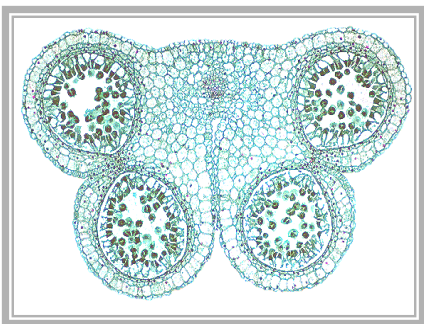
**POLLEN GRAIN**



**POLLEN TUBE**

**L.S.**

**POLLEN GRAIN**

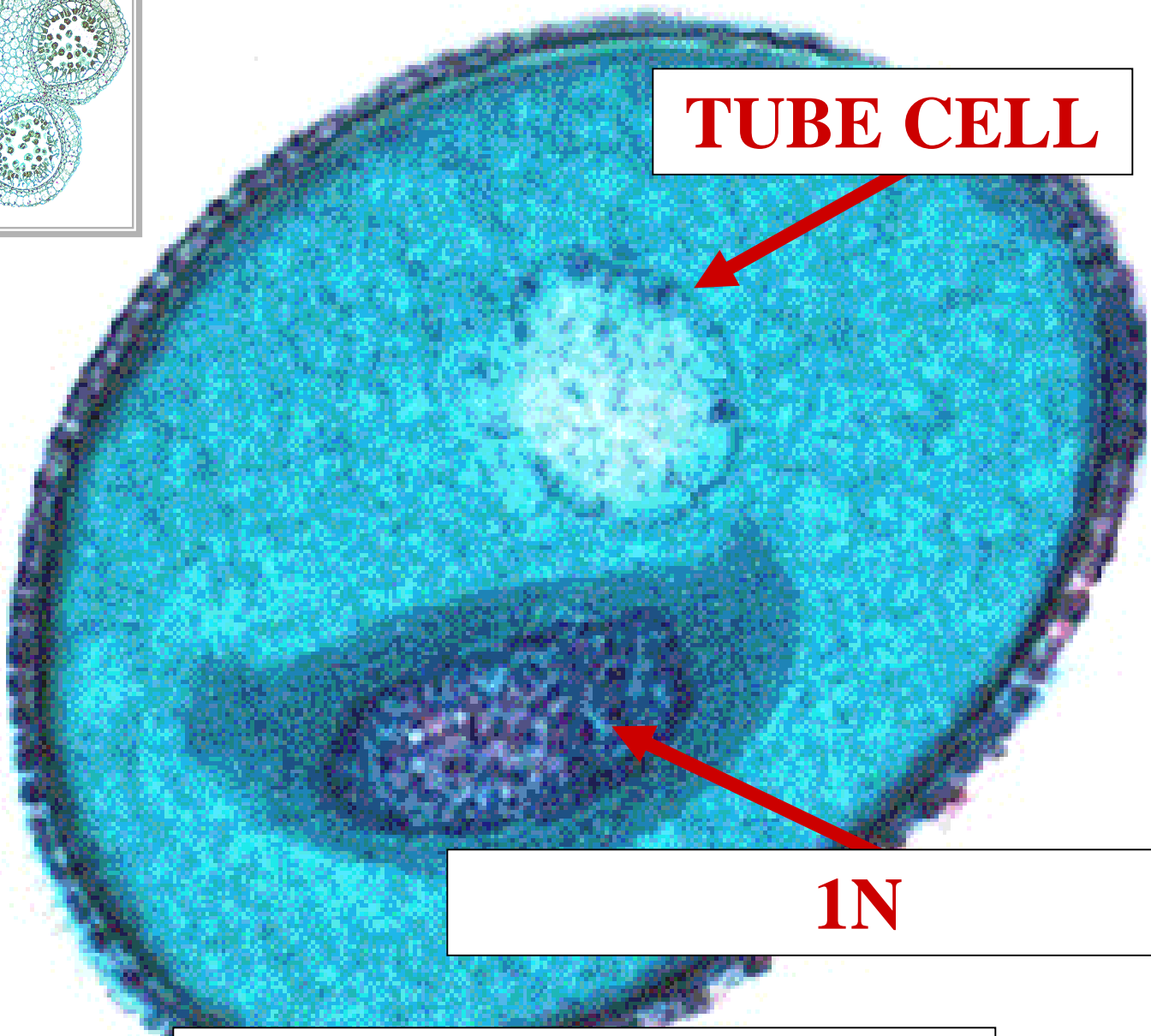
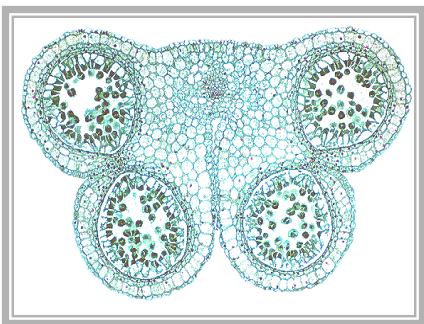


**TUBE CELL**

**GENERATIVE CELL**

**L.S.**

**POLLEN GRAIN**

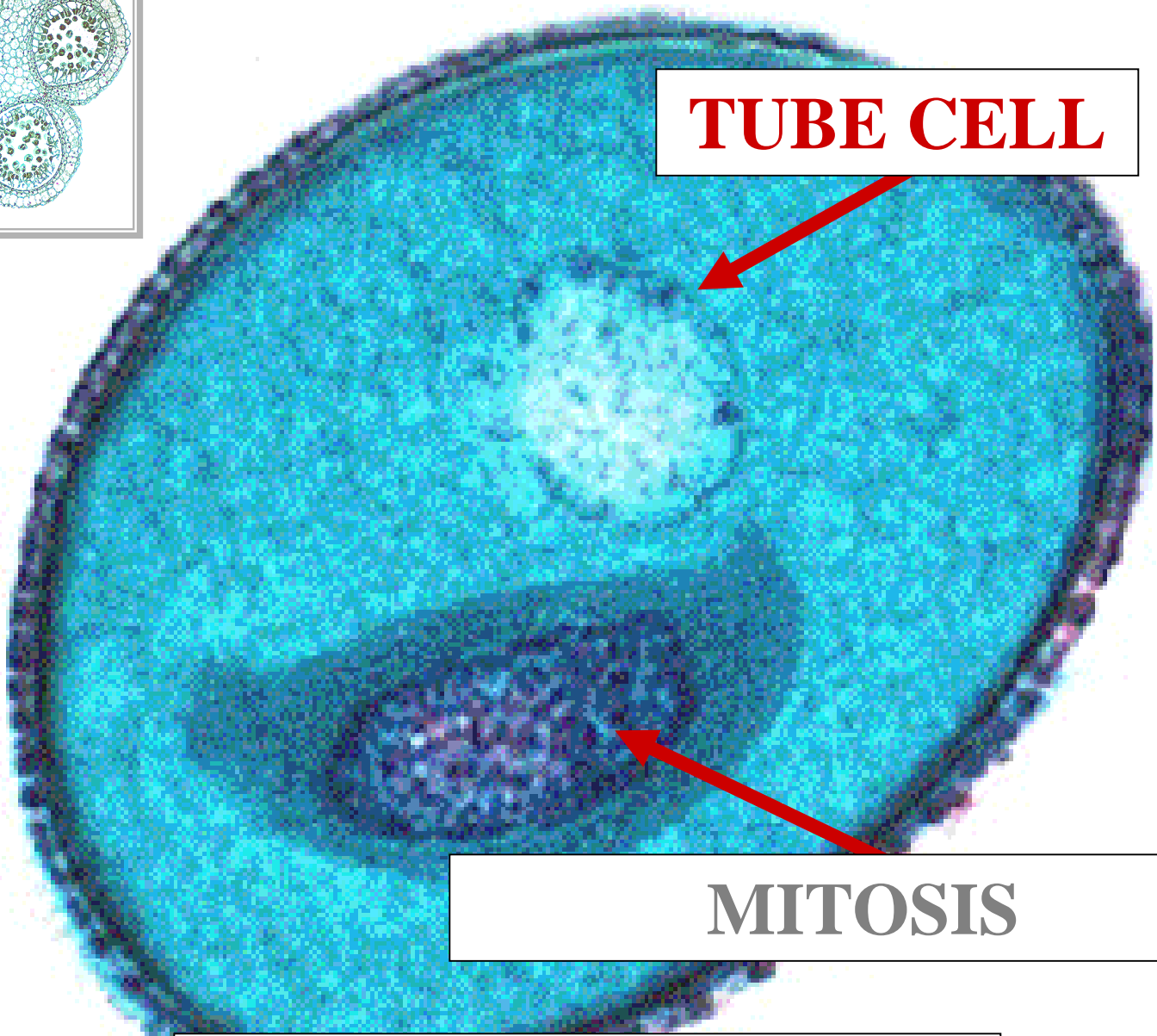
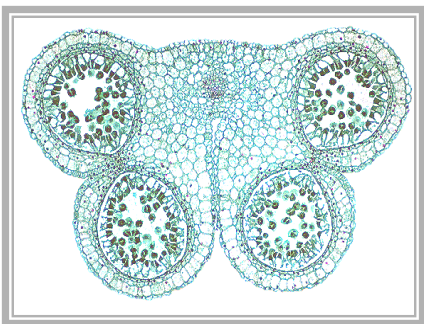


**TUBE CELL**

**1N**

**L.S.**

**POLLEN GRAIN**

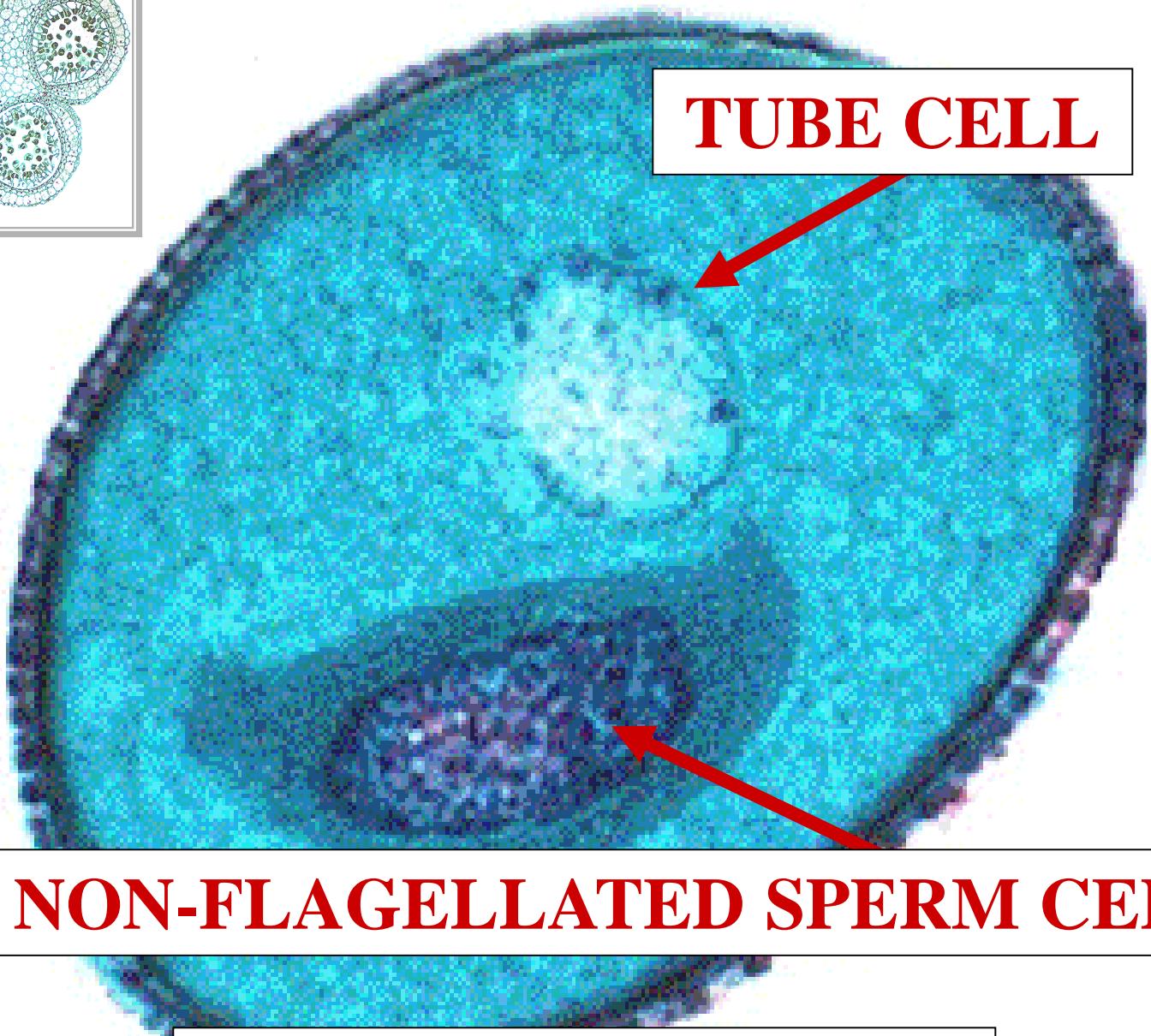
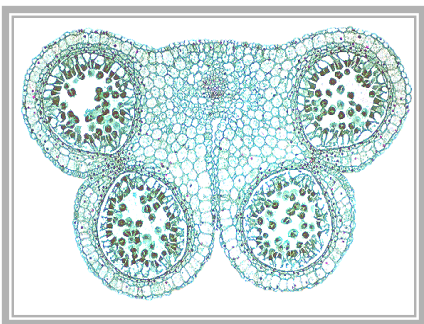


**TUBE CELL**

**MITOSIS**

**L.S.**

**POLLEN GRAIN**



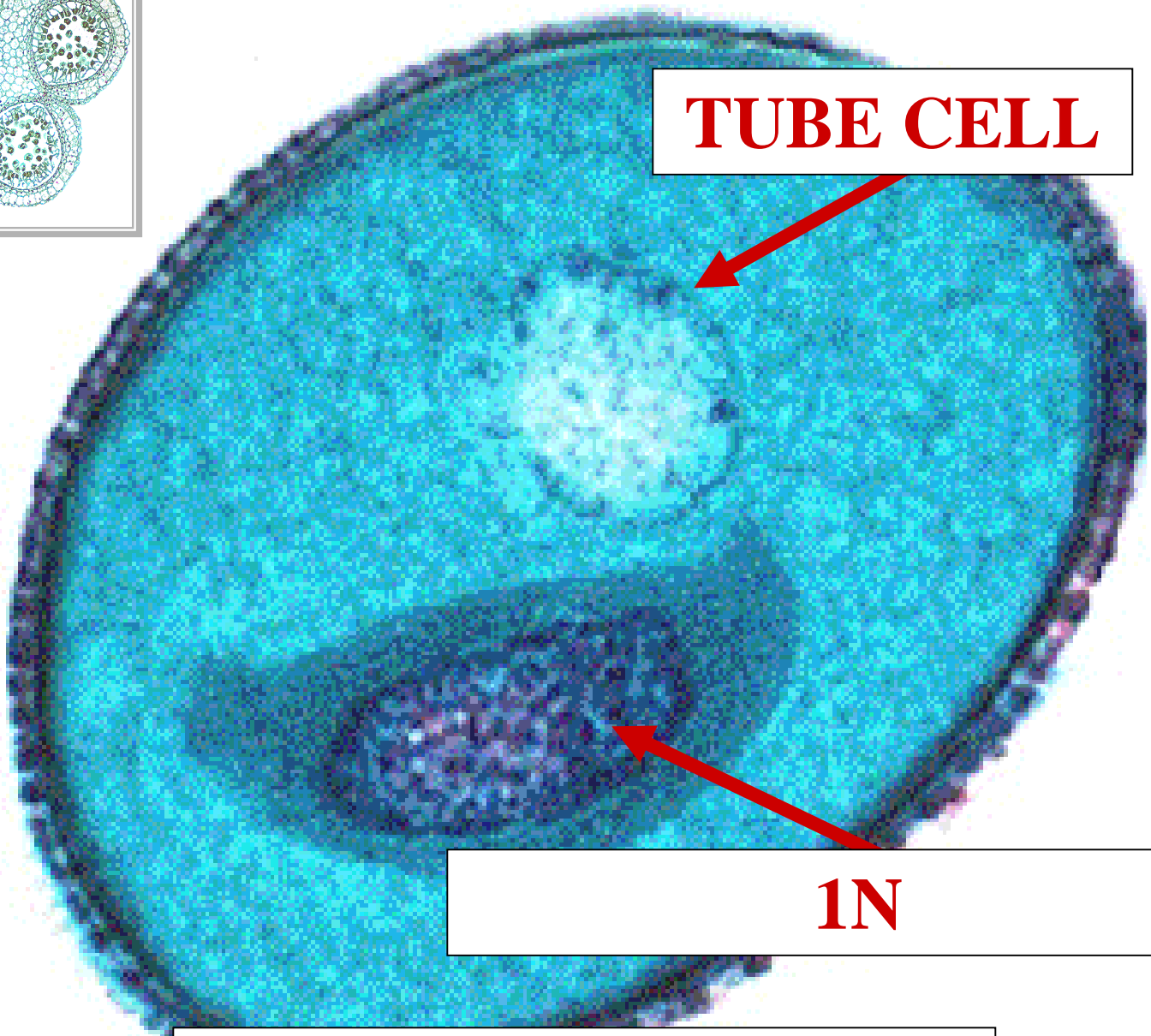
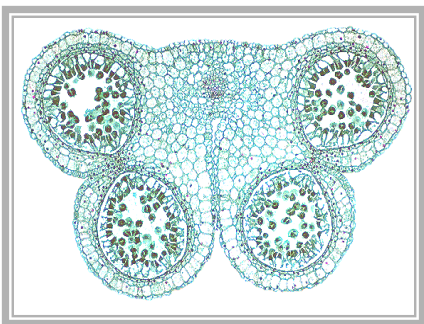
**TUBE CELL**

**2 NON-FLAGELLATED SPERM CELLS**

**L.S.**

**POLLEN GRAIN**





**TUBE CELL**

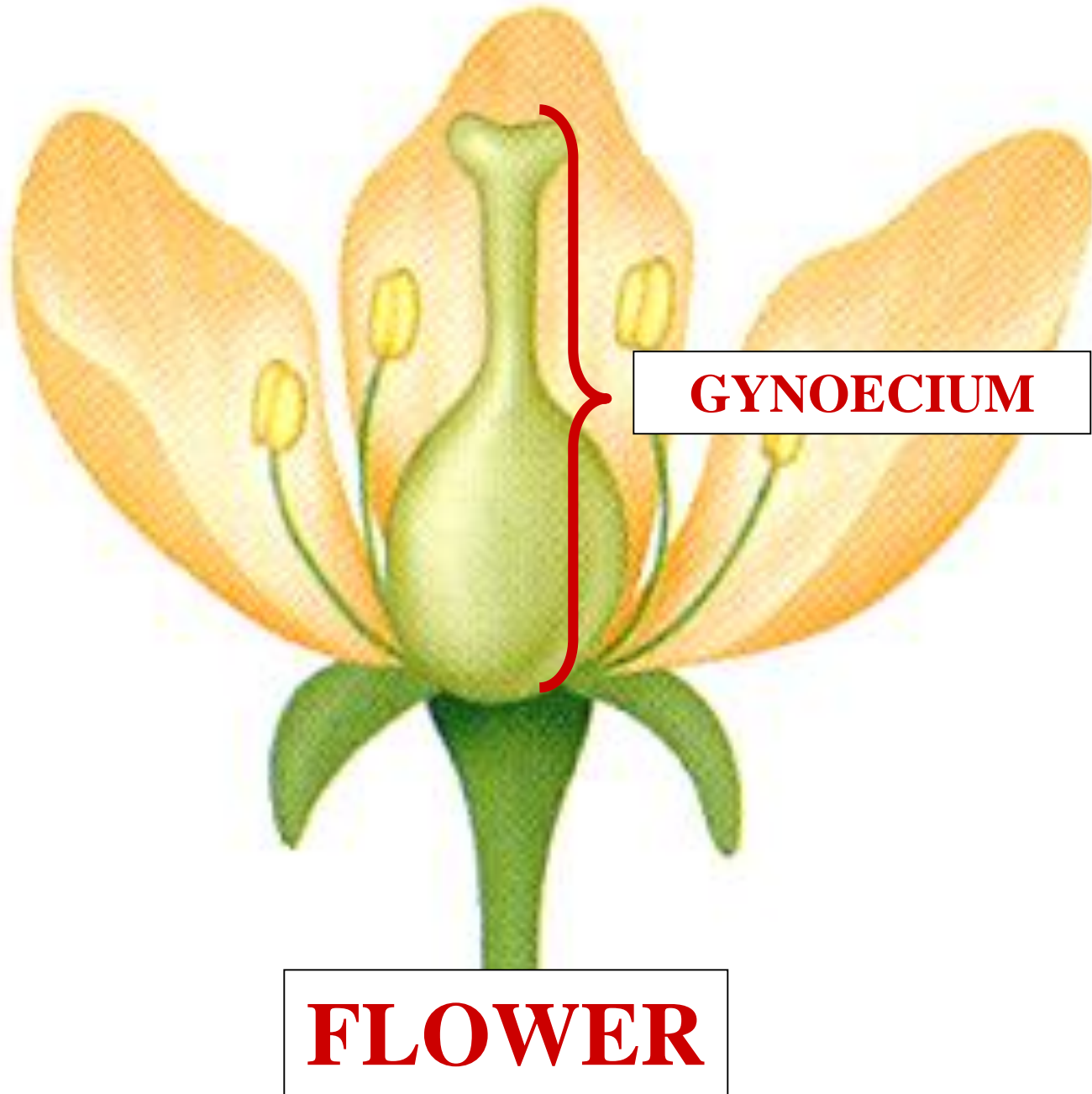
**1N**

**L.S.**

**POLLEN GRAIN**

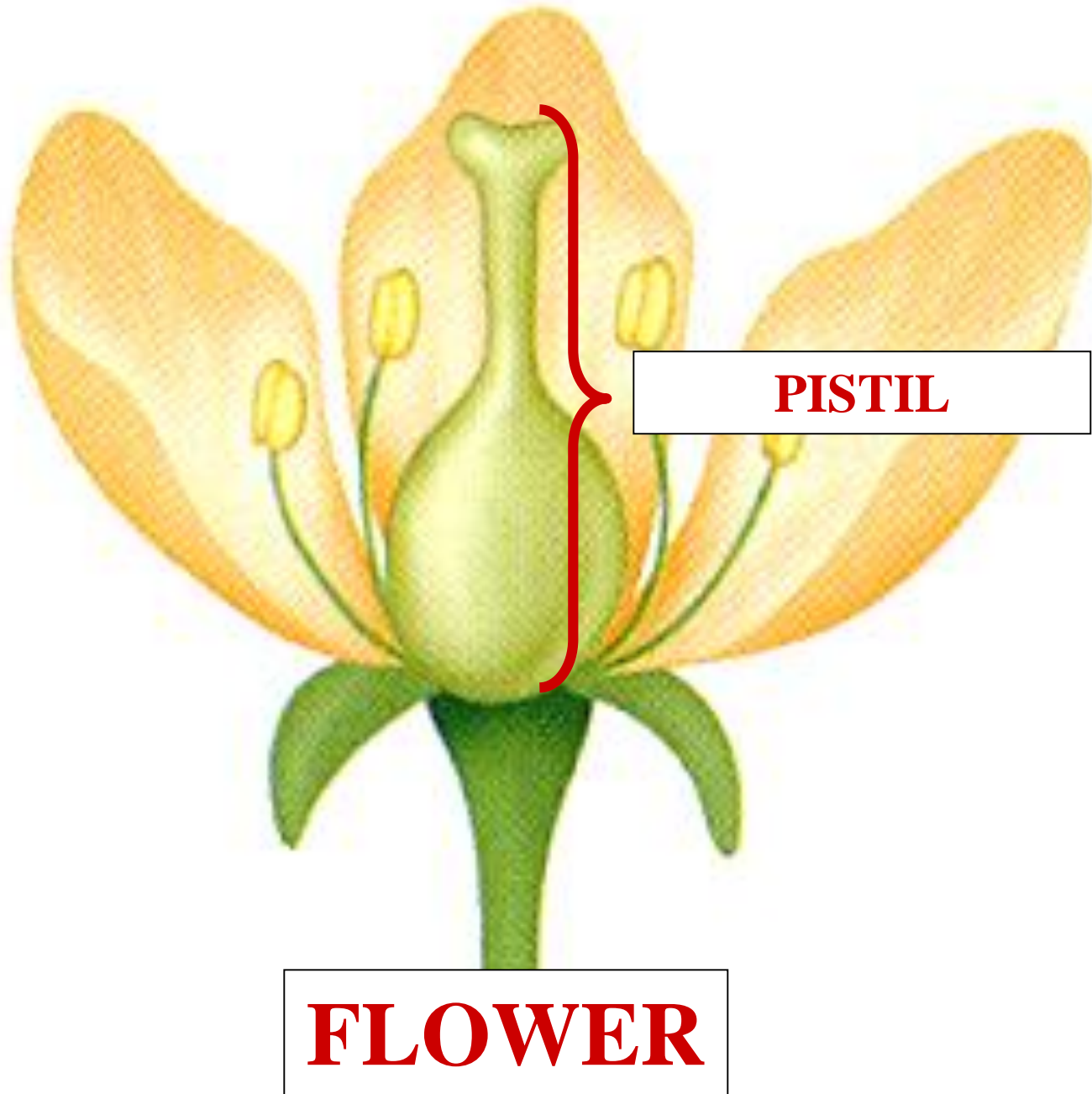


**FLOWER**



**GYNOECIUM**

**FLOWER**



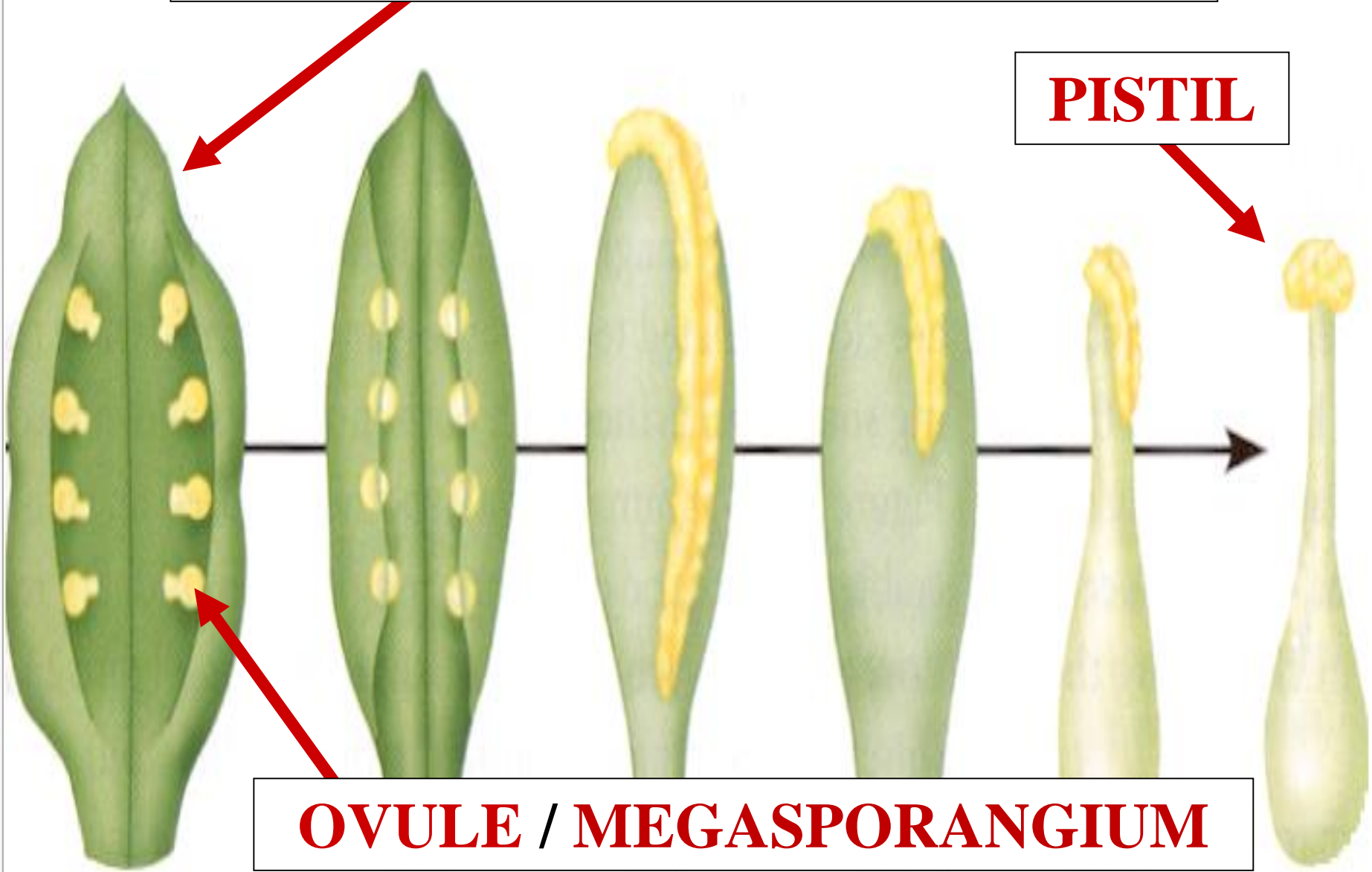
**PISTIL**

**FLOWER**

**LEAF**

**PISTIL**

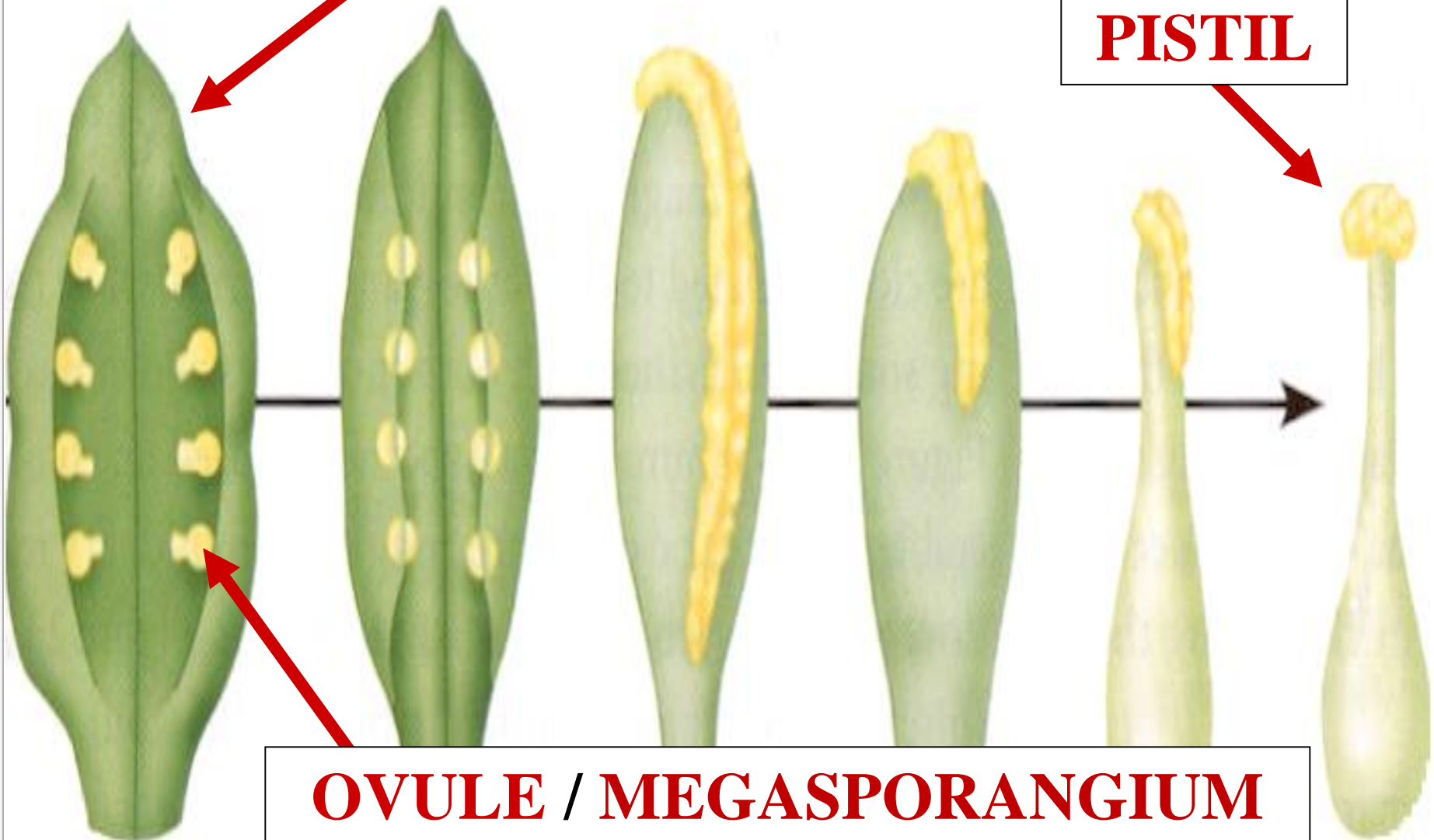
**OVULE / MEGASPORANGIUM**



**MEGASPOROPHYLL**

**PISTIL**

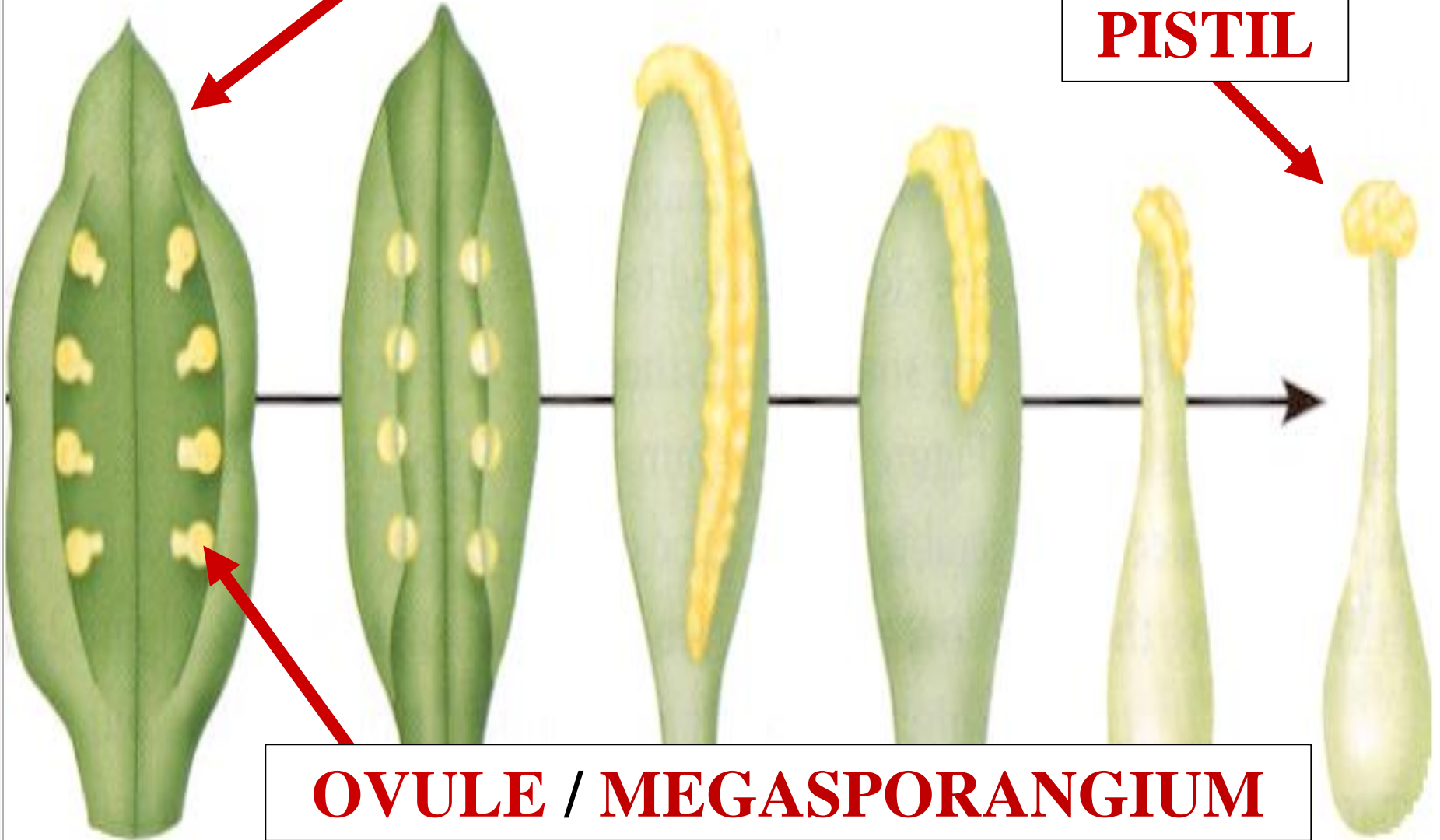
**OVULE / MEGASPORANGIUM**



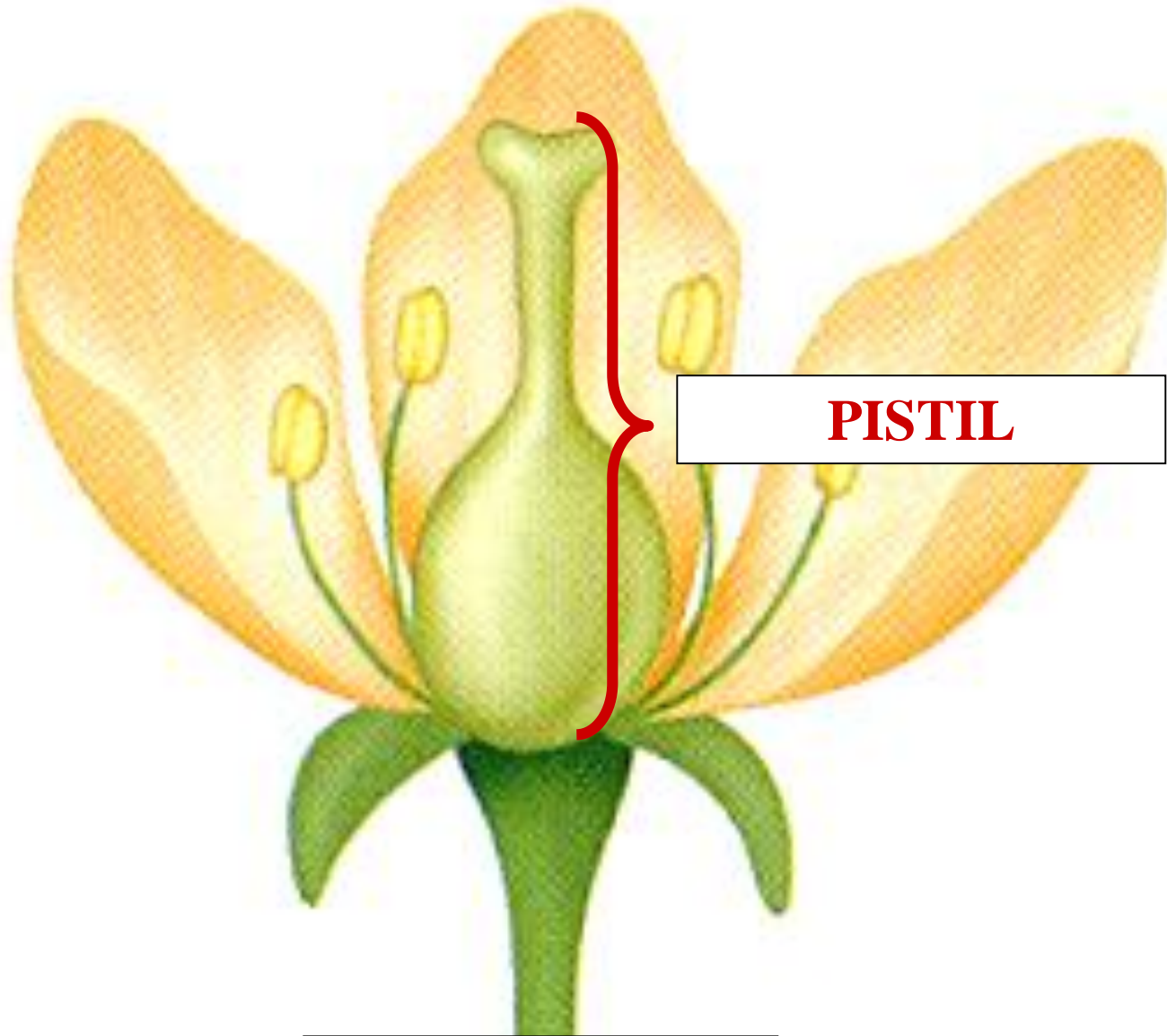


**CARPEL**

**PISTIL**



**OVULE / MEGASPORANGIUM**

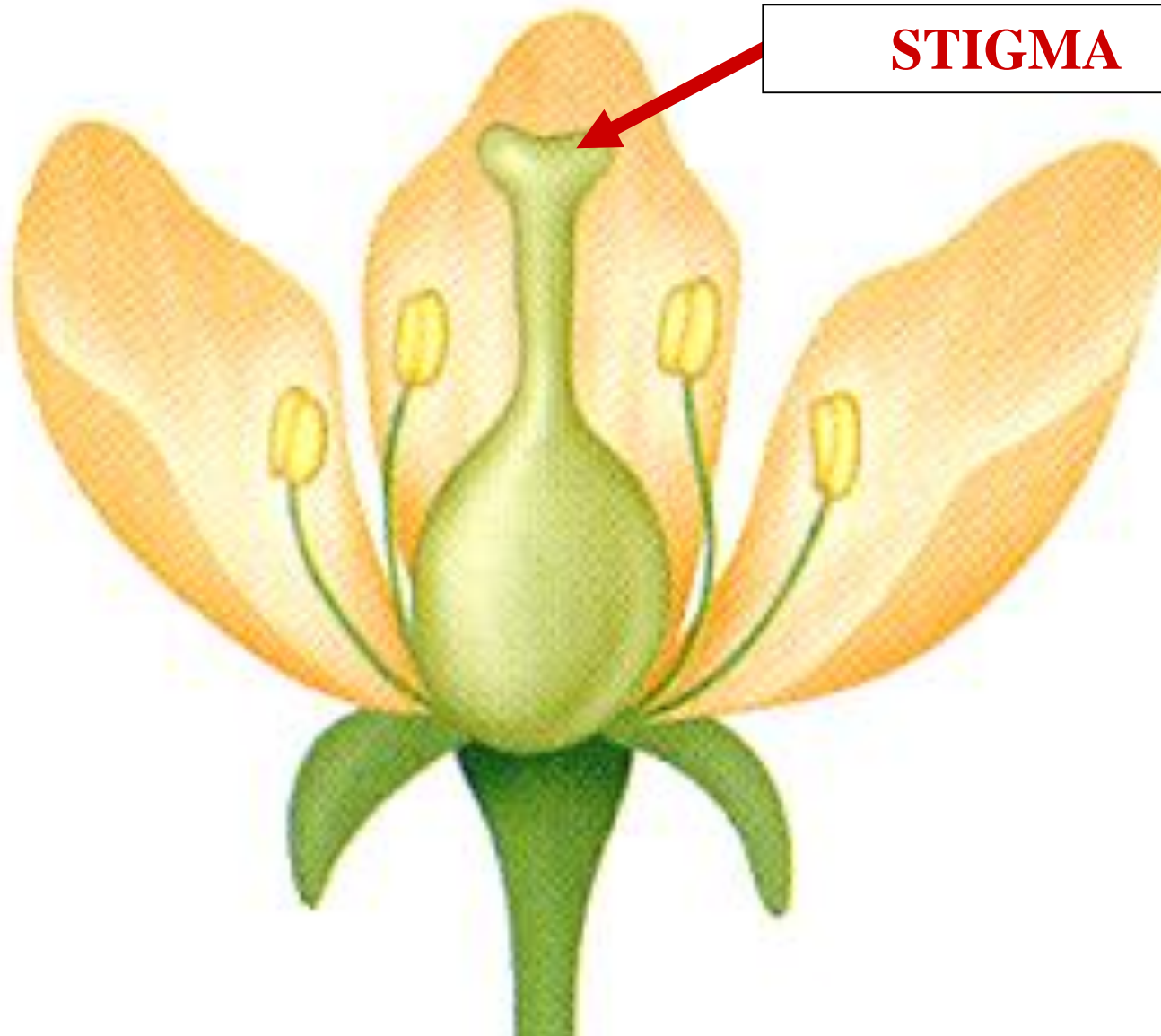


**PISTIL**

**FLOWER**

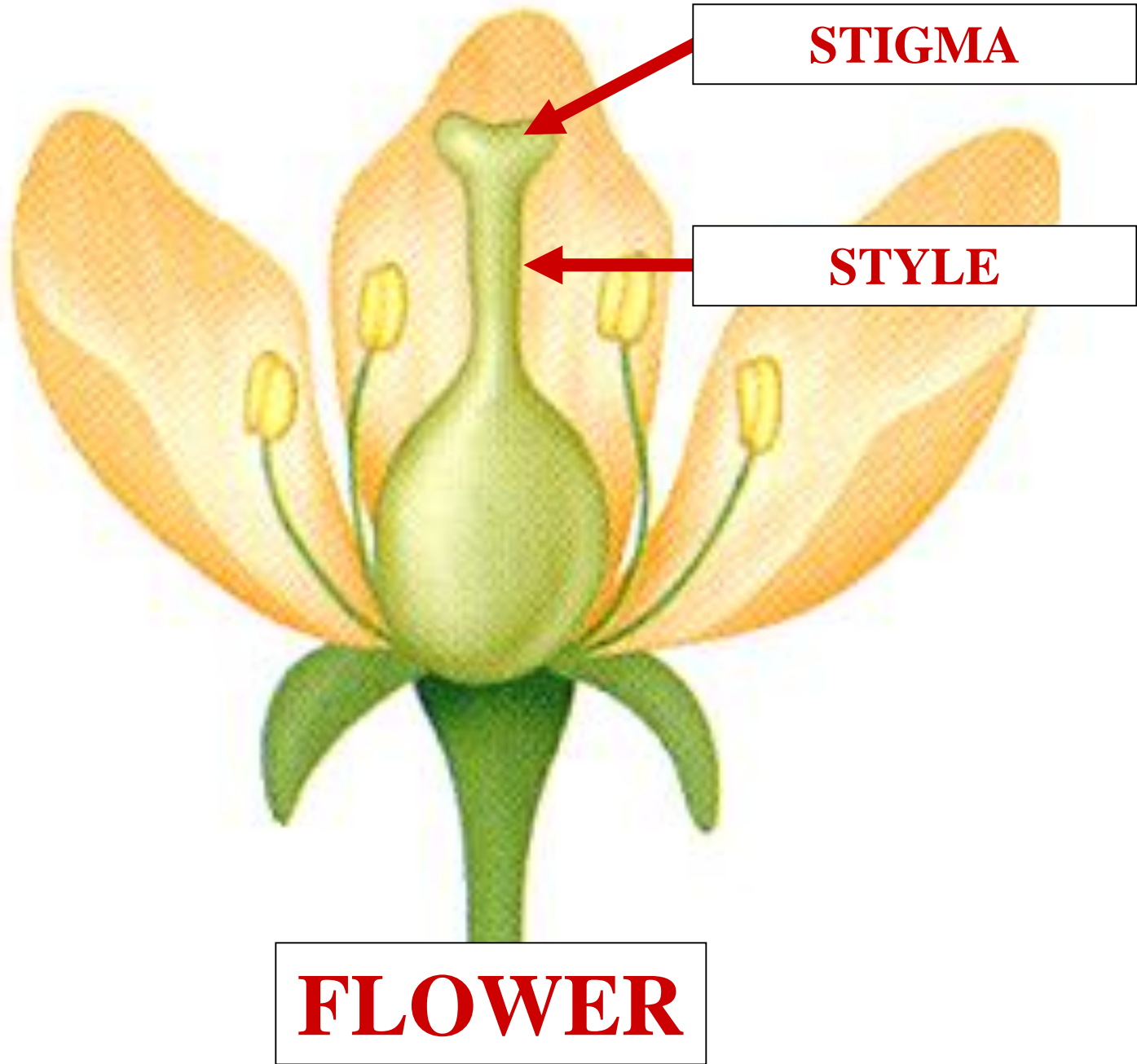
**L.S.**

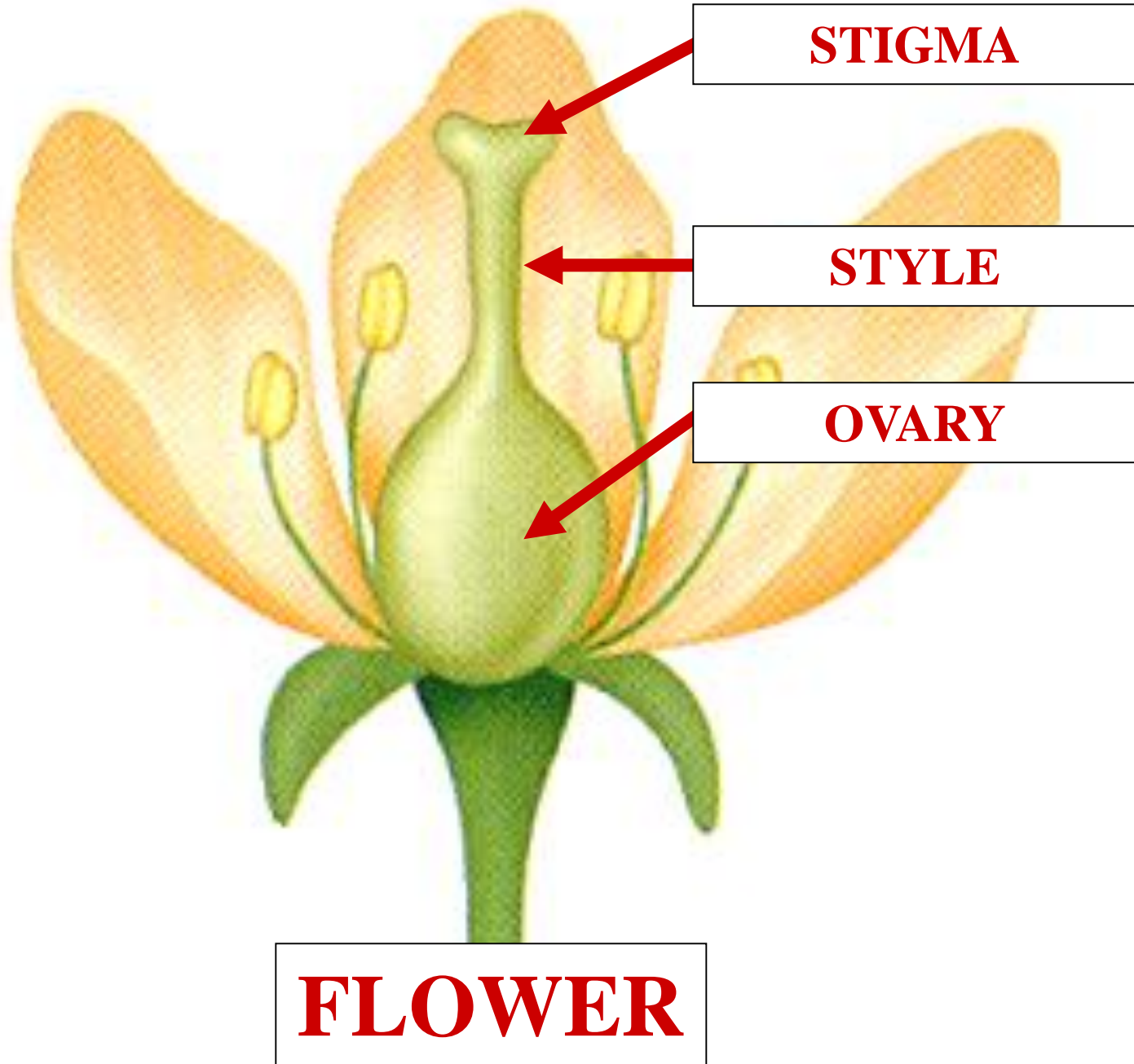




**STIGMA**

**FLOWER**



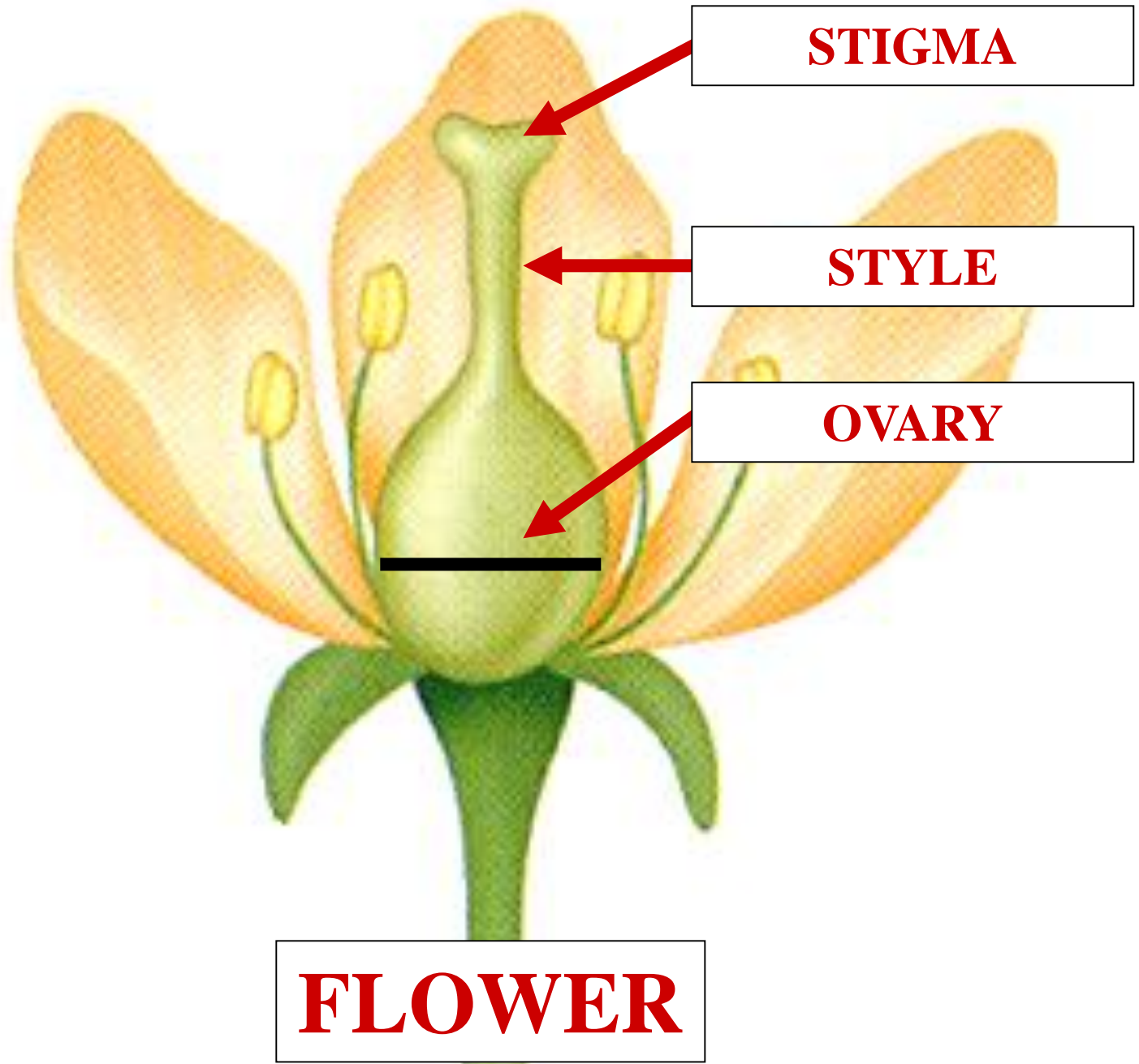


**STIGMA**

**STYLE**

**OVARY**

**FLOWER**

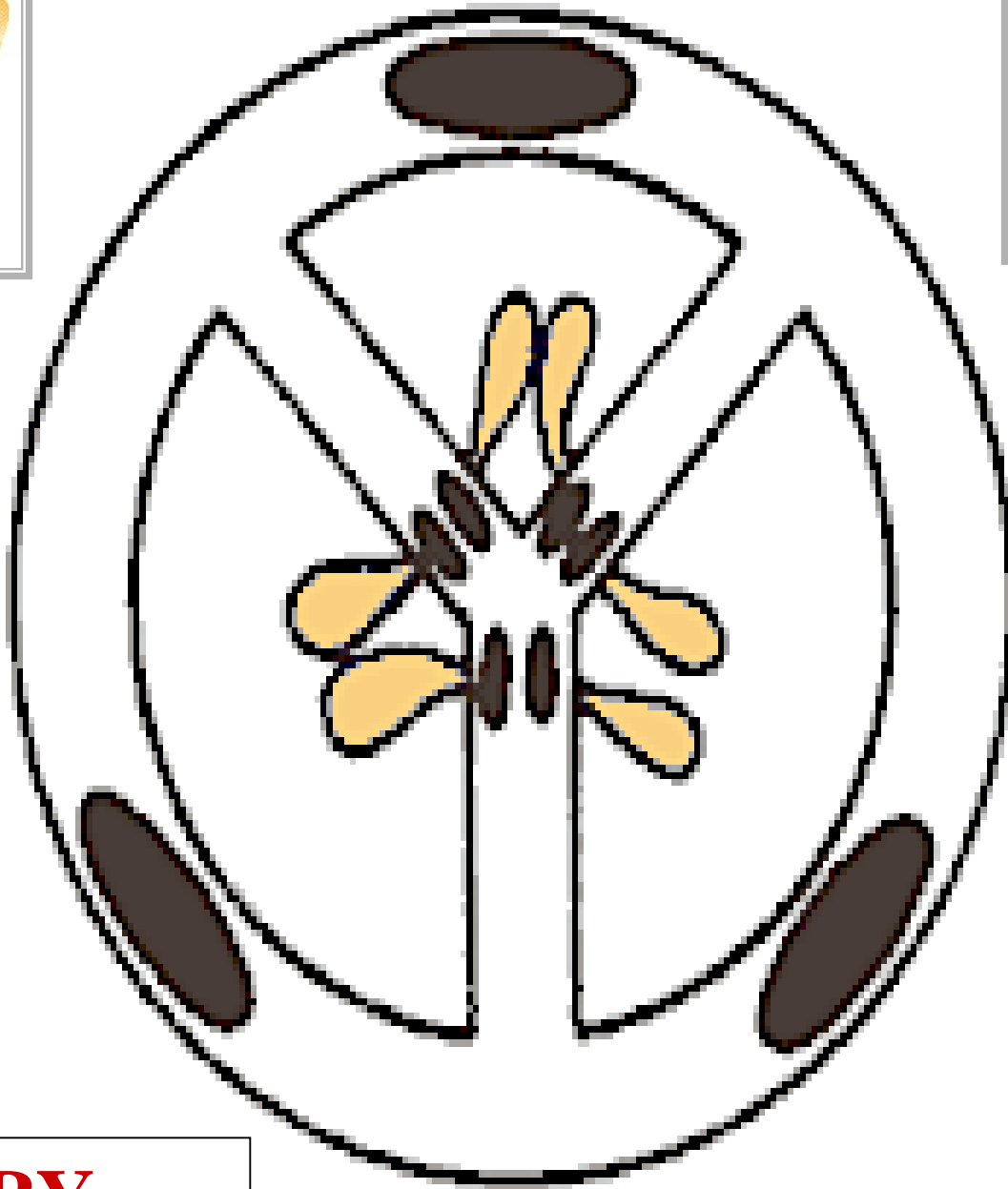
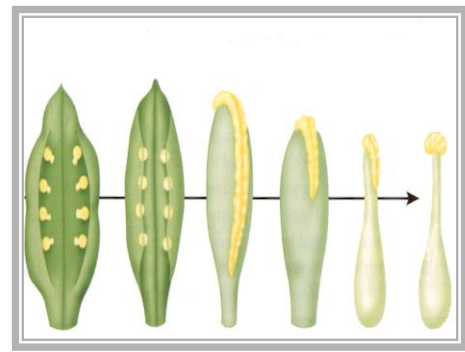
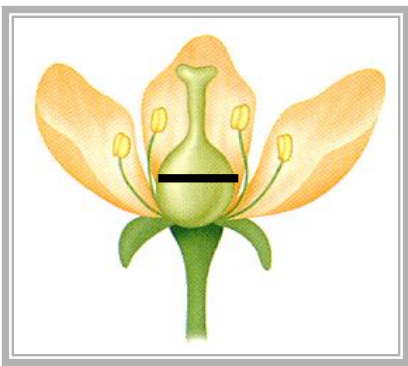


**STIGMA**

**STYLE**

**OVARY**

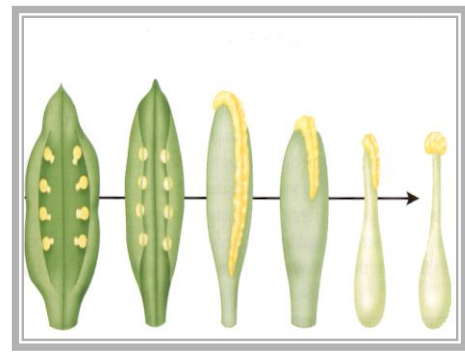
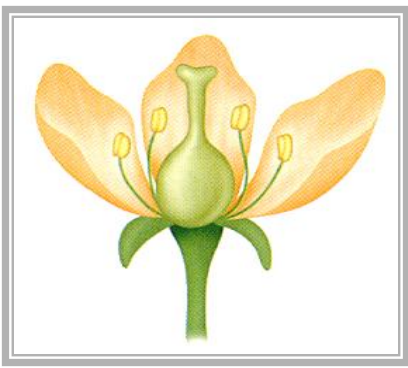
**FLOWER**



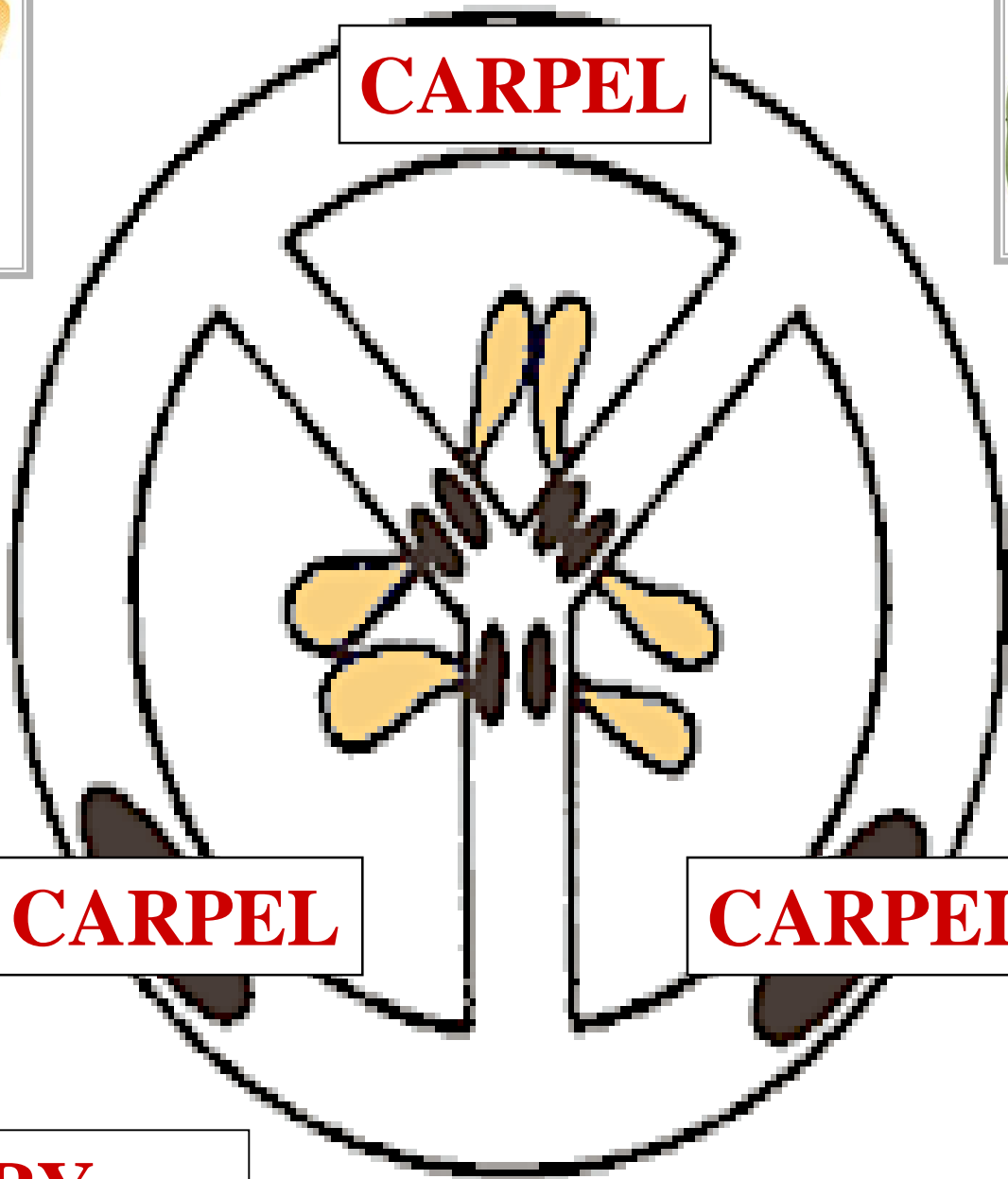
3C

**OVARY**

**C.S.**



**L**



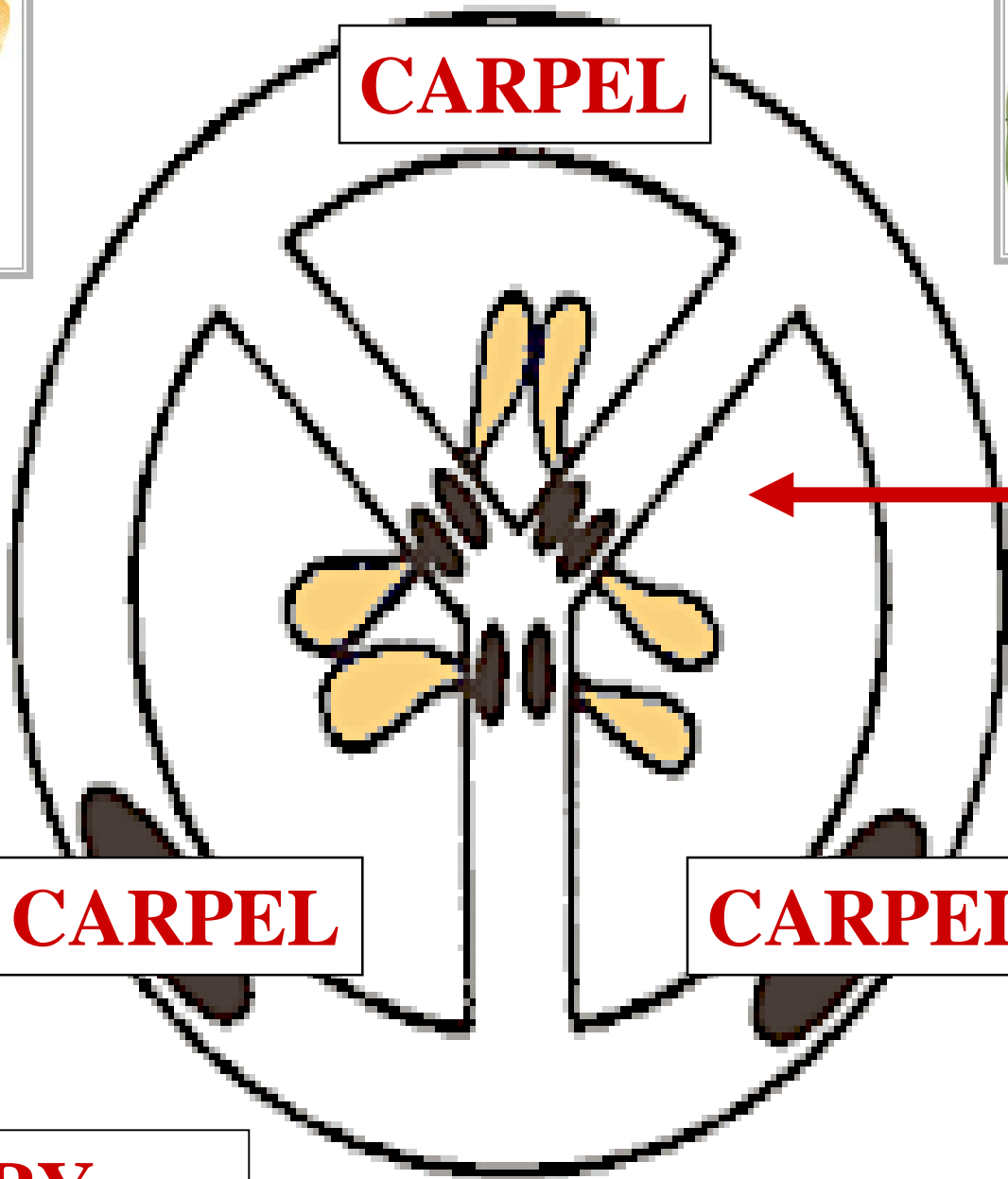
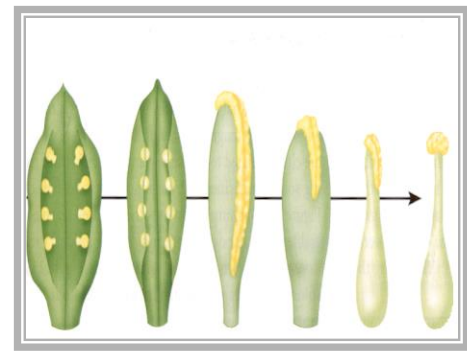
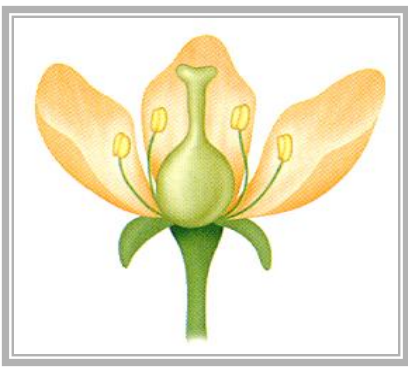
**CARPEL**

**CARPEL**

**CARPEL**

**OVARY**

**C.S.**



**CARPEL**

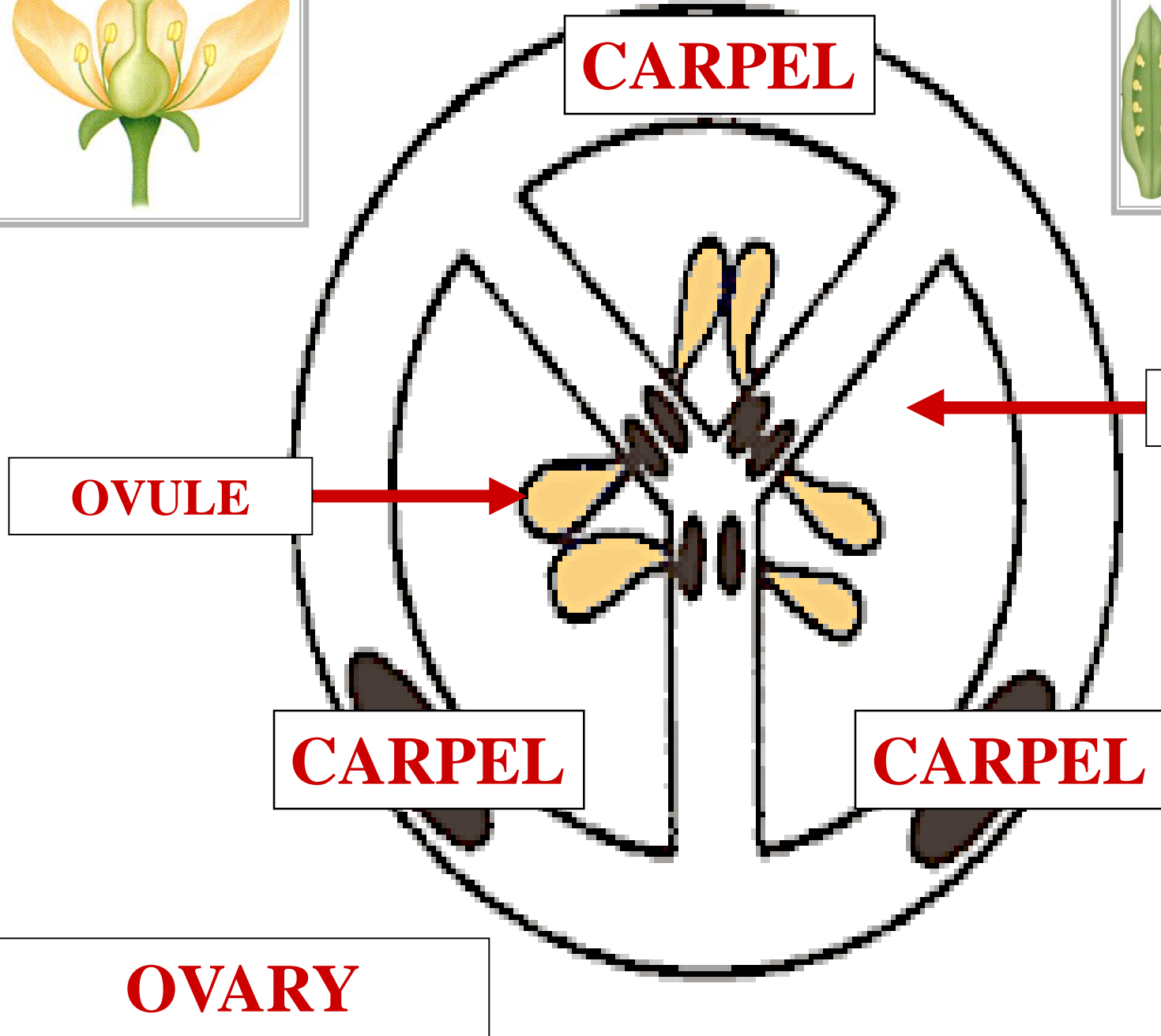
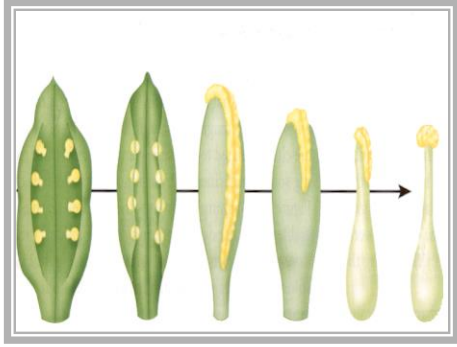
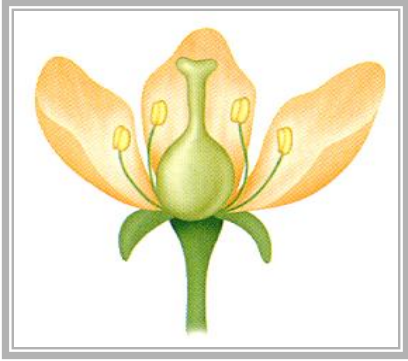
**LOCULE**

**CARPEL**

**CARPEL**

**OVARY**

**C.S.**



**CARPEL**

**LOCULE**

**OVULE**

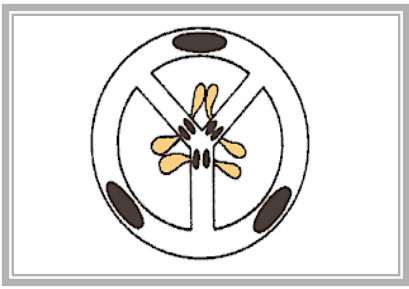
**CARPEL**

**CARPEL**

**OVARY**

**C.S.**





**OVULE**



**L.S.**



**OVULE**

**L.S.**

**INTEGUMENT**





**MEGASPORANGIUM**

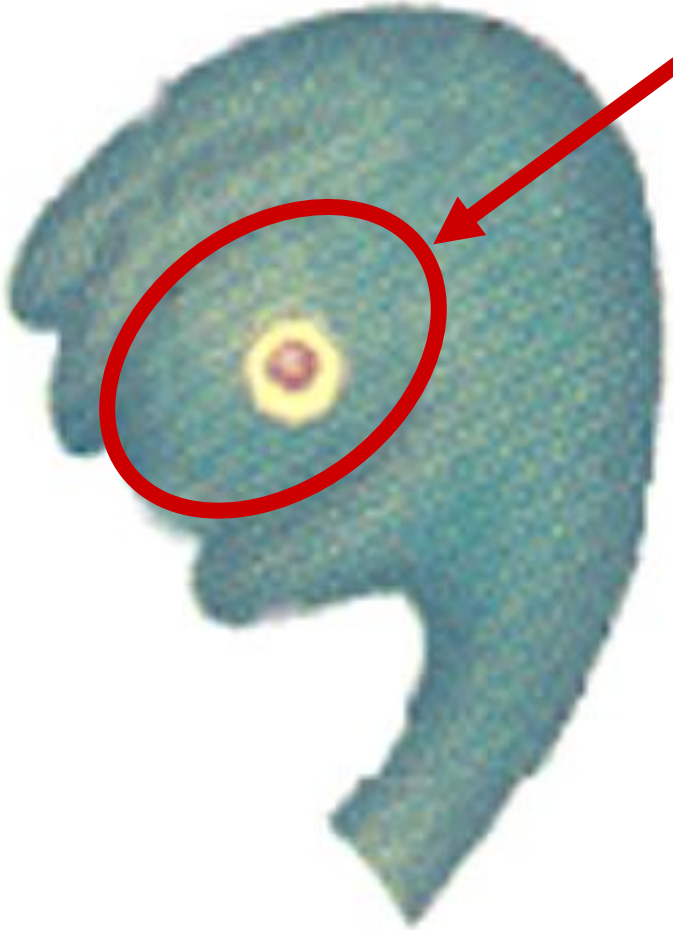
**OVULE**



**L.S.**



**OVULE**



**NUCELLUS**

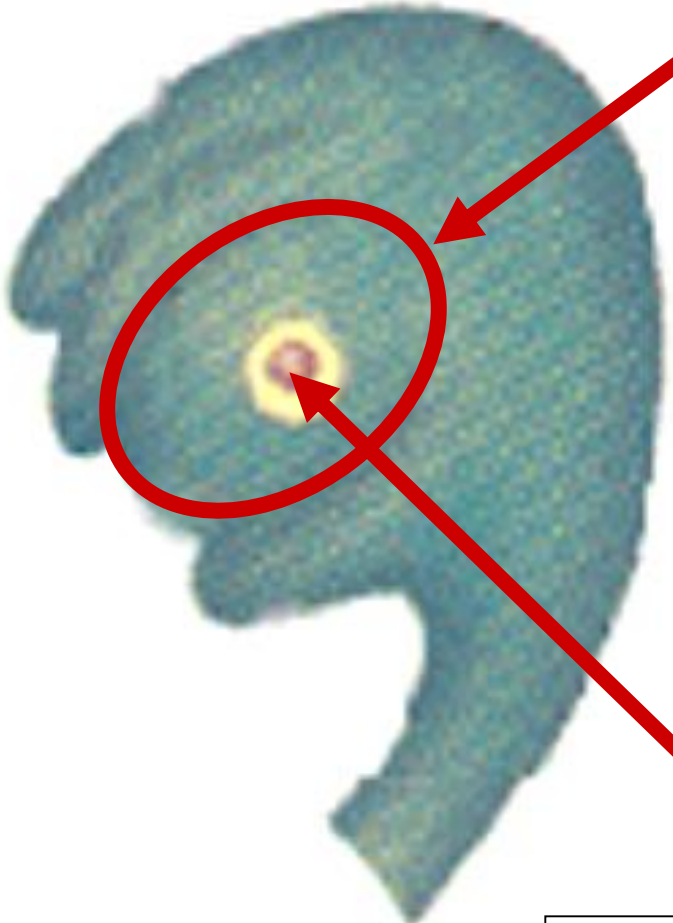
**L.S.**



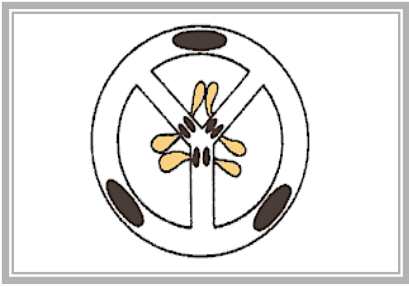
**OVULE**

**L.S.**

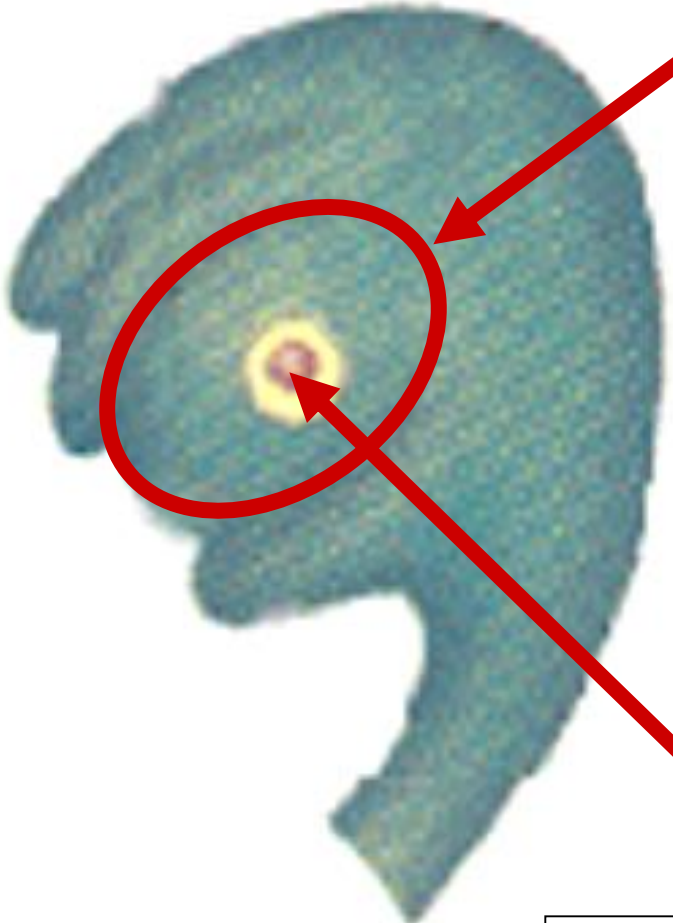
**MEGASPORANGIUM**



**MEGASPOROCYTE**



**OVULE**



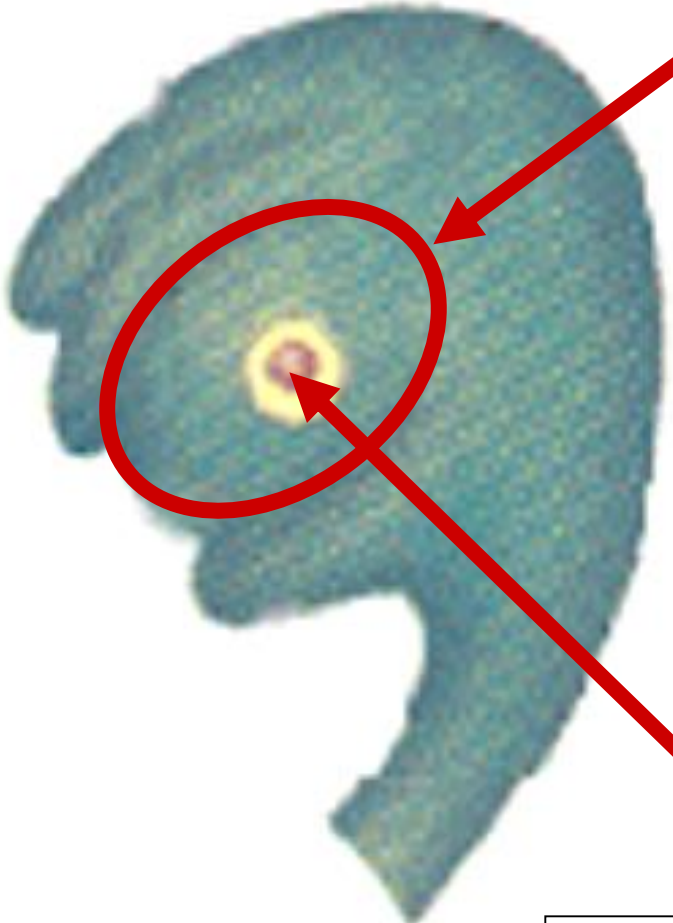
**MEGASPORANGIUM**

**2N**

**L.S.**



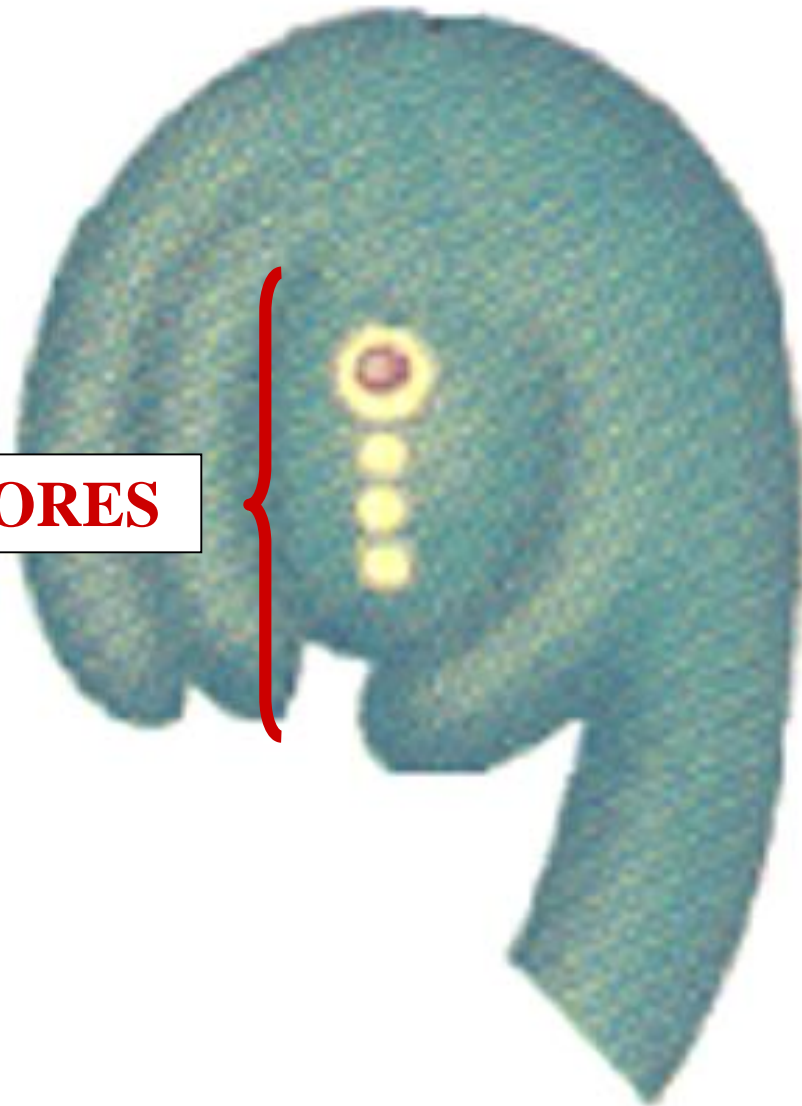
**OVULE**



**MEGASPORANGIUM**

**MEIOSIS**

**L.S.**

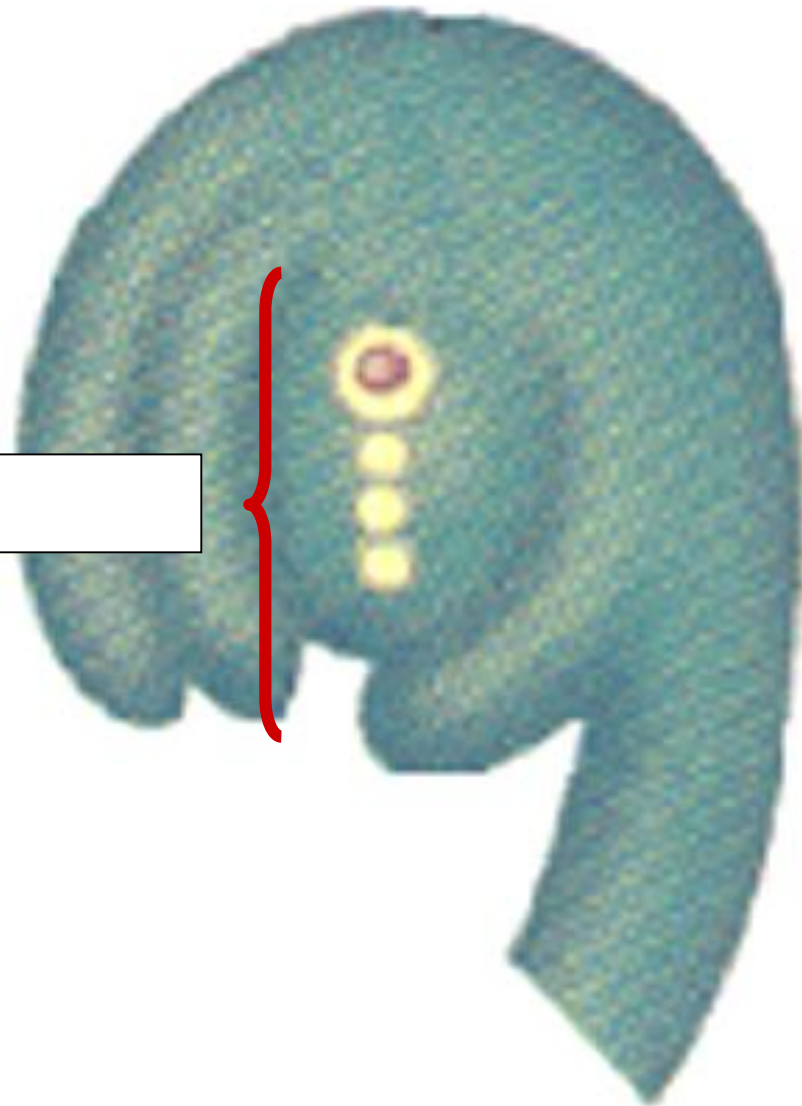
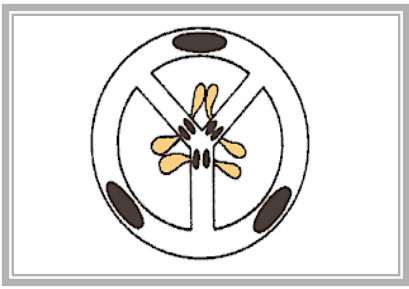


**MEGASPORES**

**L.S.**

**OVULE**

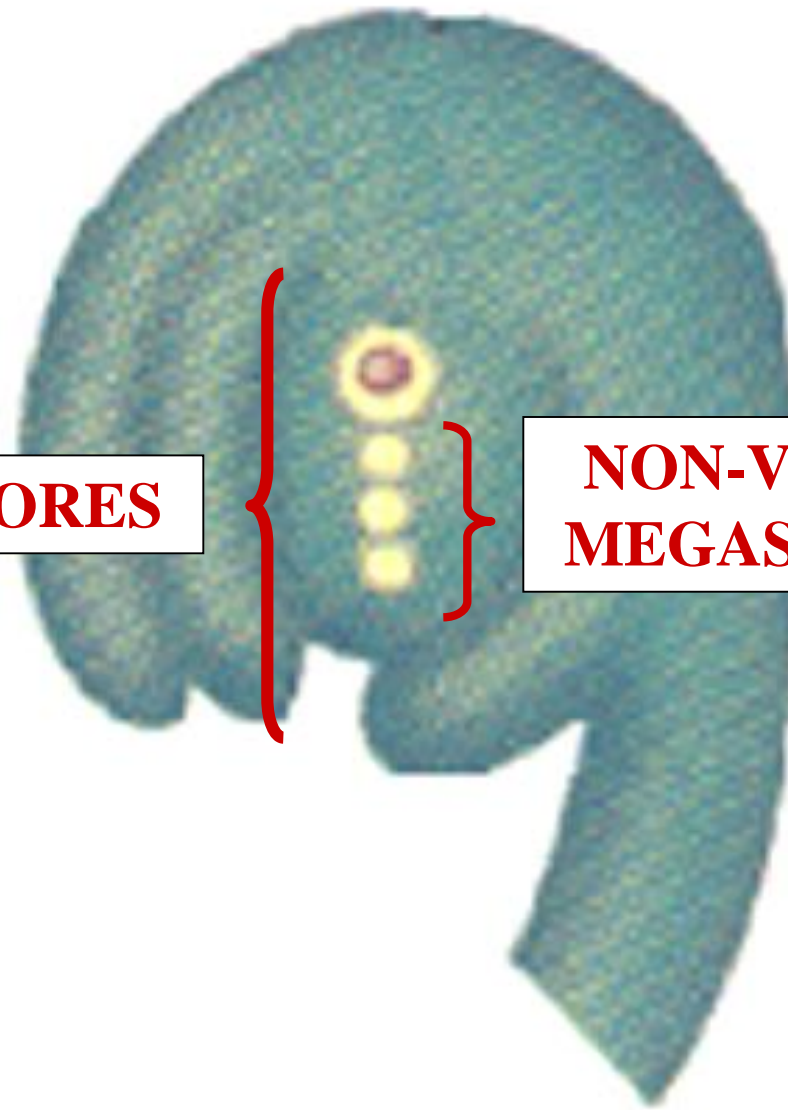




**1N**

**L.S.**

**OVULE**



**MEGASPORES**

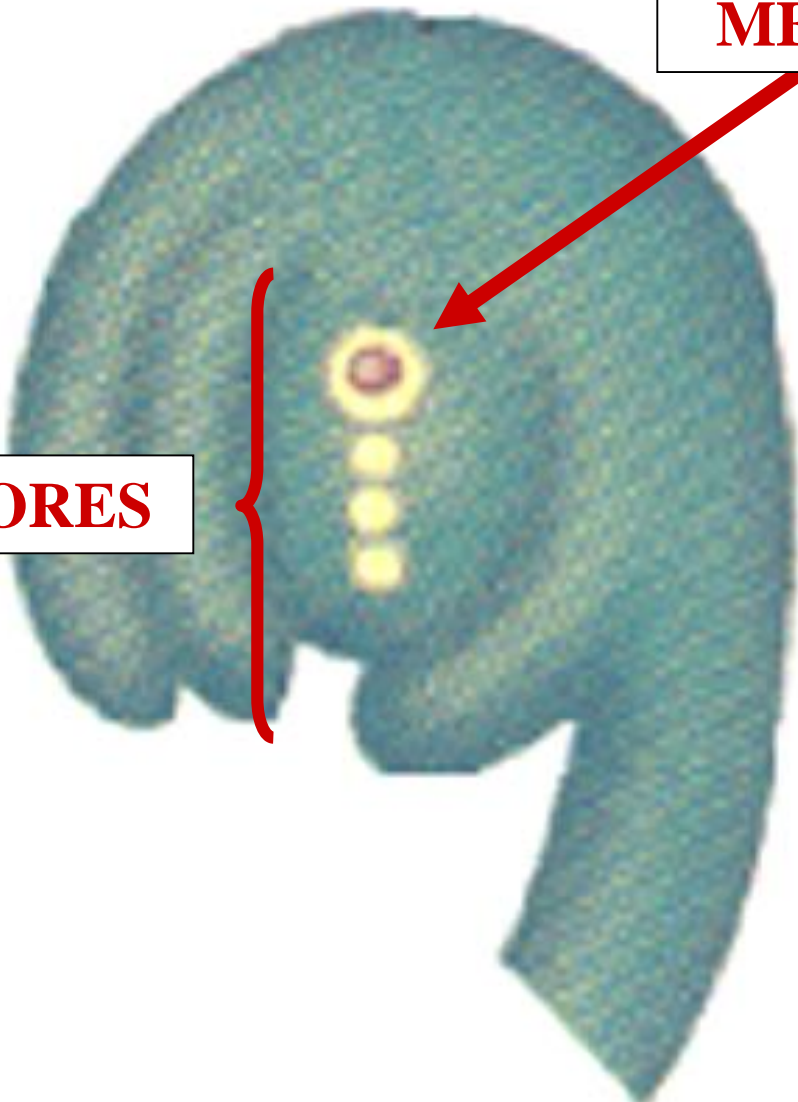
**NON-VIABLE  
MEGASPORES**

**L.S.**

**OVULE**



**VIABLE  
MEGASPORE**



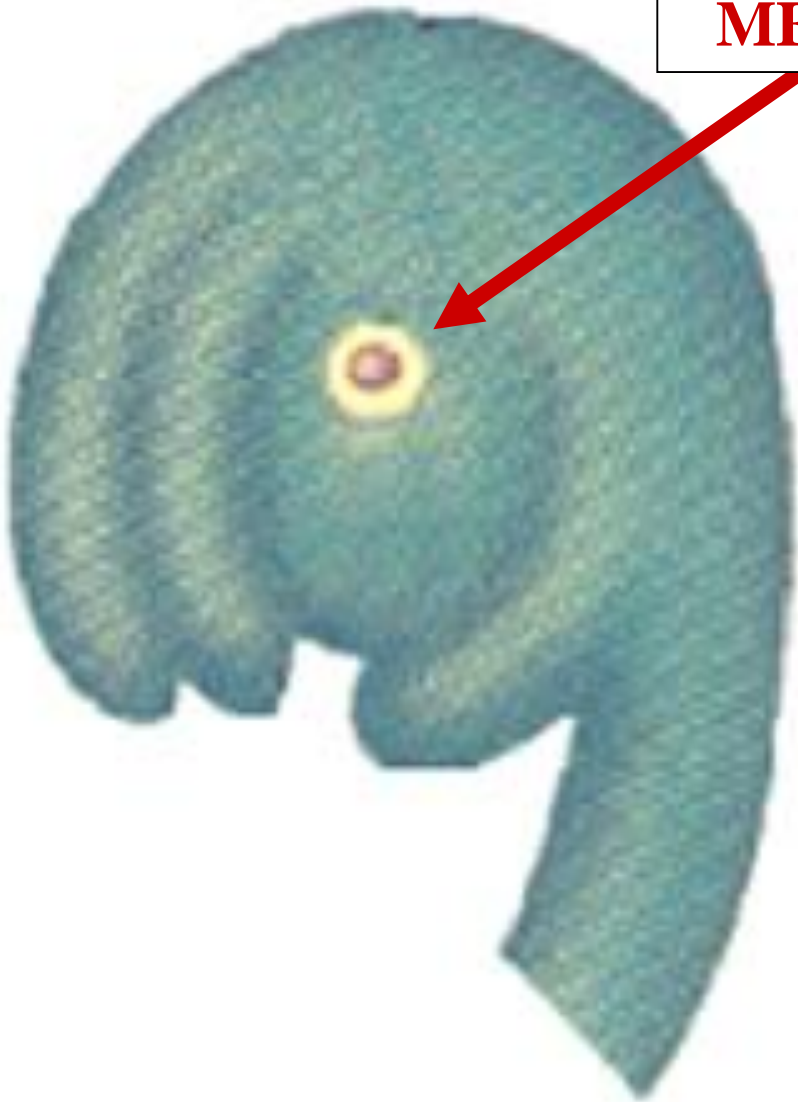
**MEGASPORES**

**L.S.**

**OVULE**



**VIABLE  
MEGASPORE**

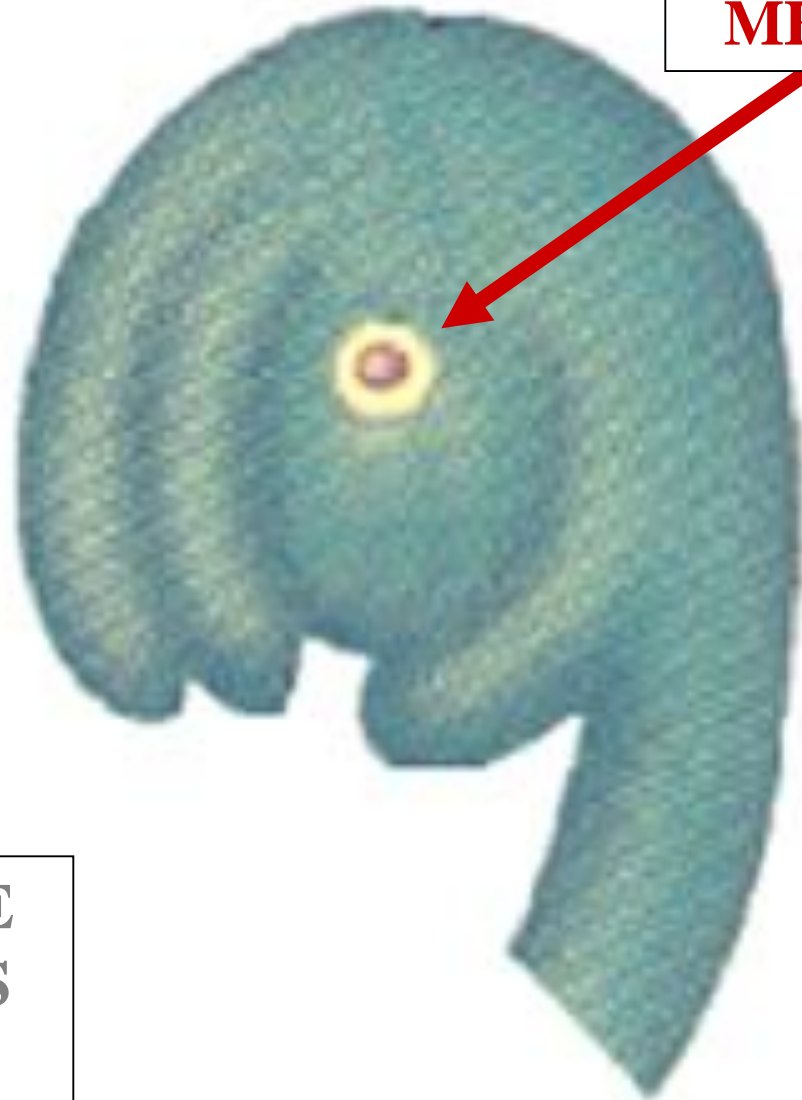


**L.S.**

**OVULE**



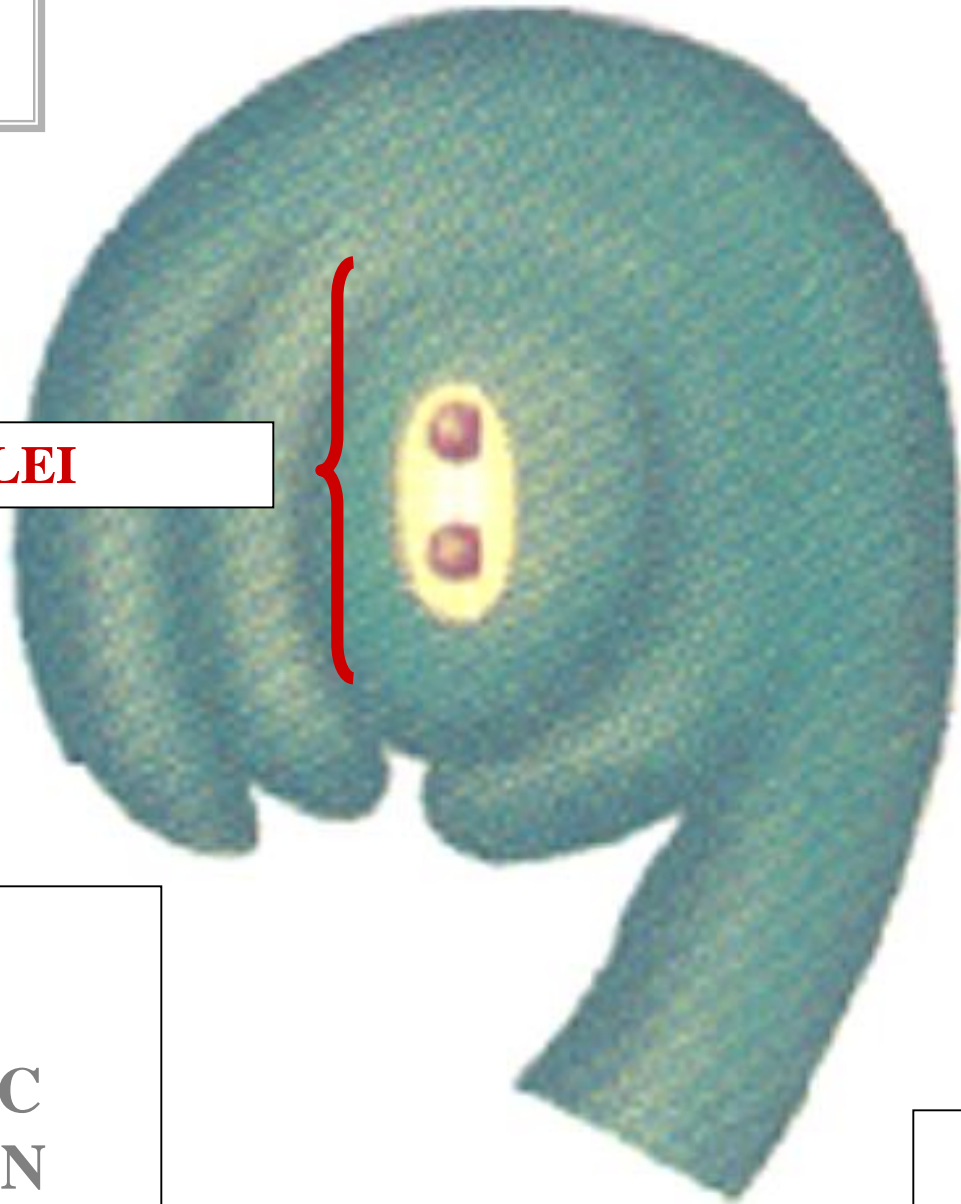
**VIABLE  
MEGASPORE**



**MEGASPORE  
UNDERGOES  
3 MITOTIC  
DIVISIONS**

**L.S.**

**OVULE**

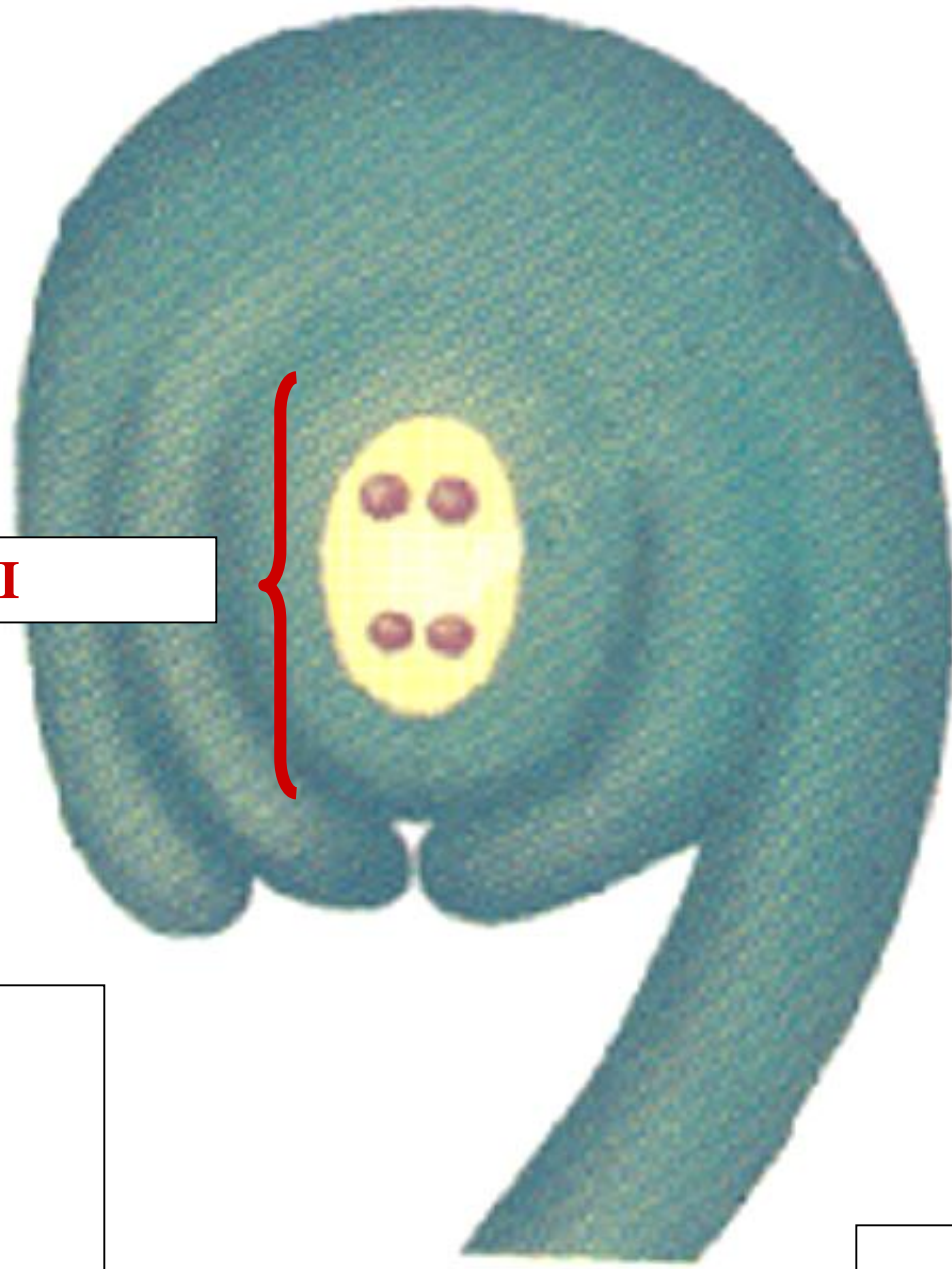


**2 NUCLEI**

**POST  
1ST  
MITOTIC  
DIVISION**

**L.S.**

**OVULE**

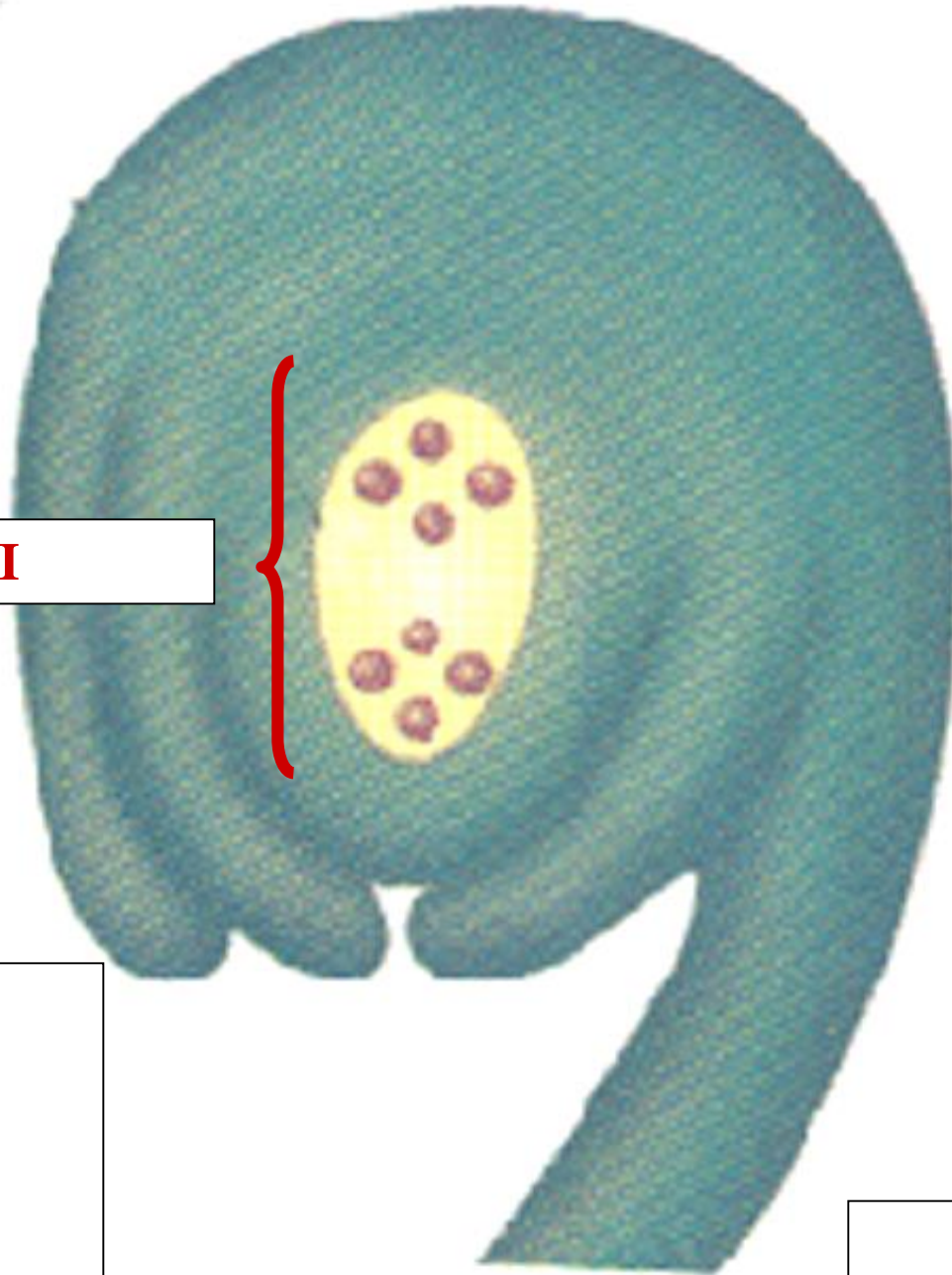
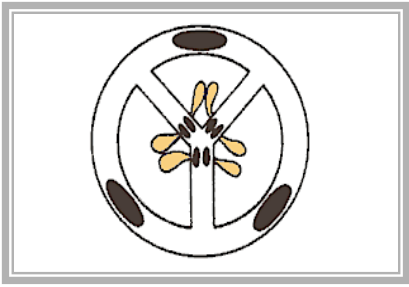


**4 NUCLEI**

**POST  
2ND  
MITOTIC  
DIVISION**

**L.S.**

**OVULE**



**8 NUCLEI**

**POST  
3RD  
MITOTIC  
DIVISION**

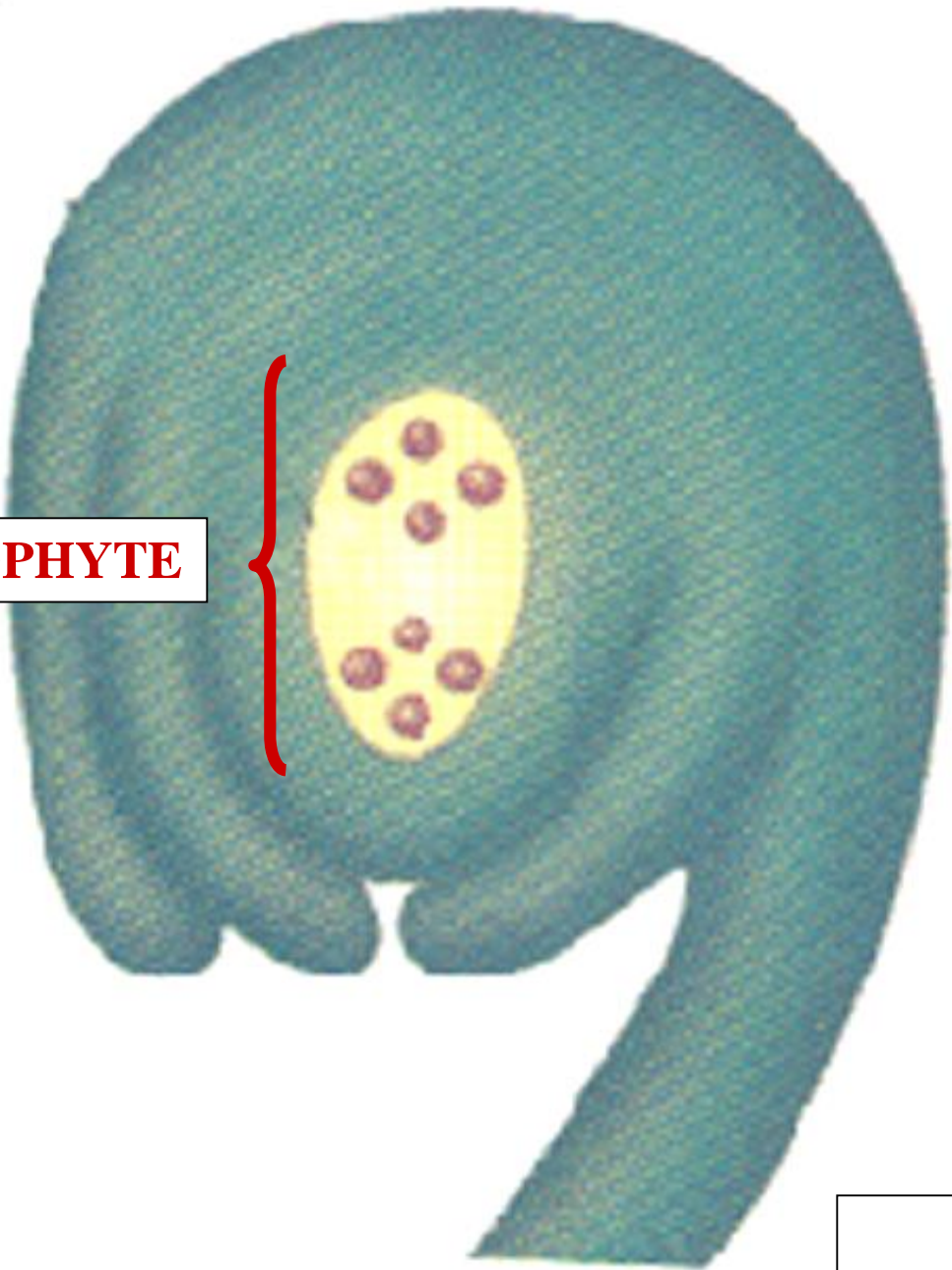
**L.S.**

**OVULE**



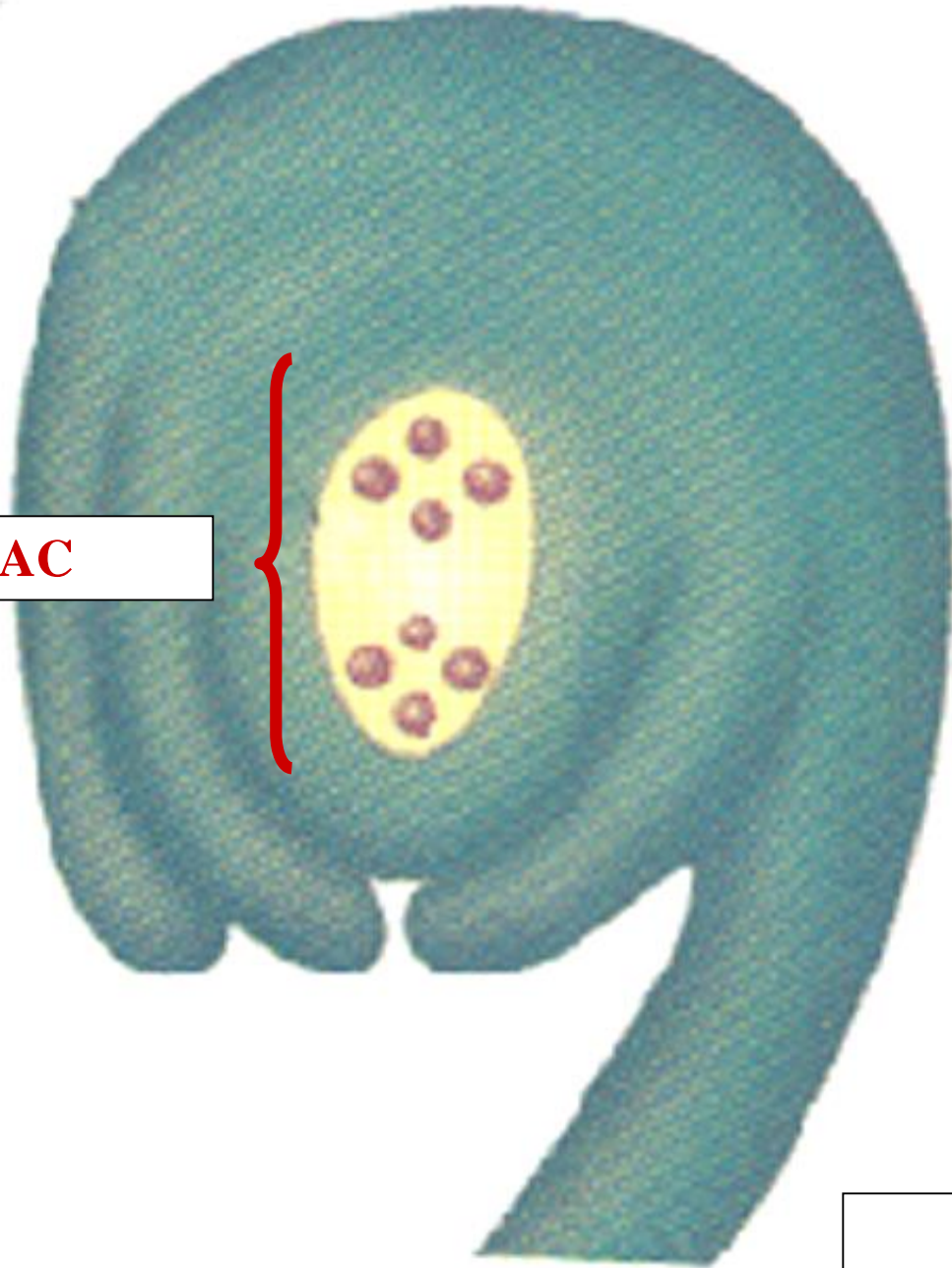


**MEGAGAMETOPHYTE**



**L.S.**

**OVULE**



**EMBRYO SAC**

**L.S.**

**OVULE**

# ANGIOSPERM OVULE

**EMBRYO SAC**  
**7 CELLS**  
**8 NUCLEI**



**OVULE**

**L.S.**



# ANGIOSPERM OVULE

## ARCHEGONIA ABSENT

**EMBRYO SAC  
7 CELLS  
8 NUCLEI**

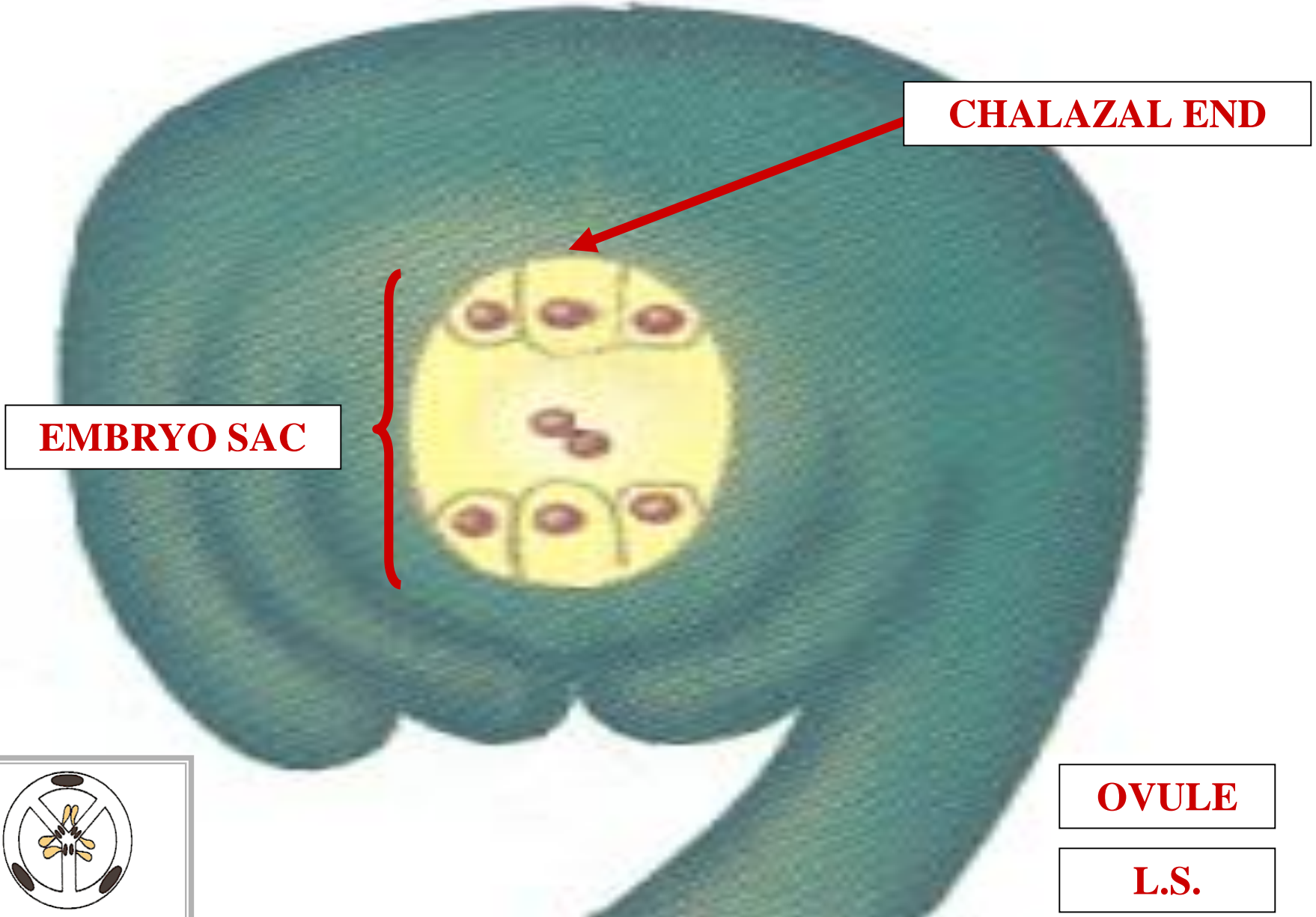


**OVULE**

**L.S.**



# ANGIOSPERM OVULE



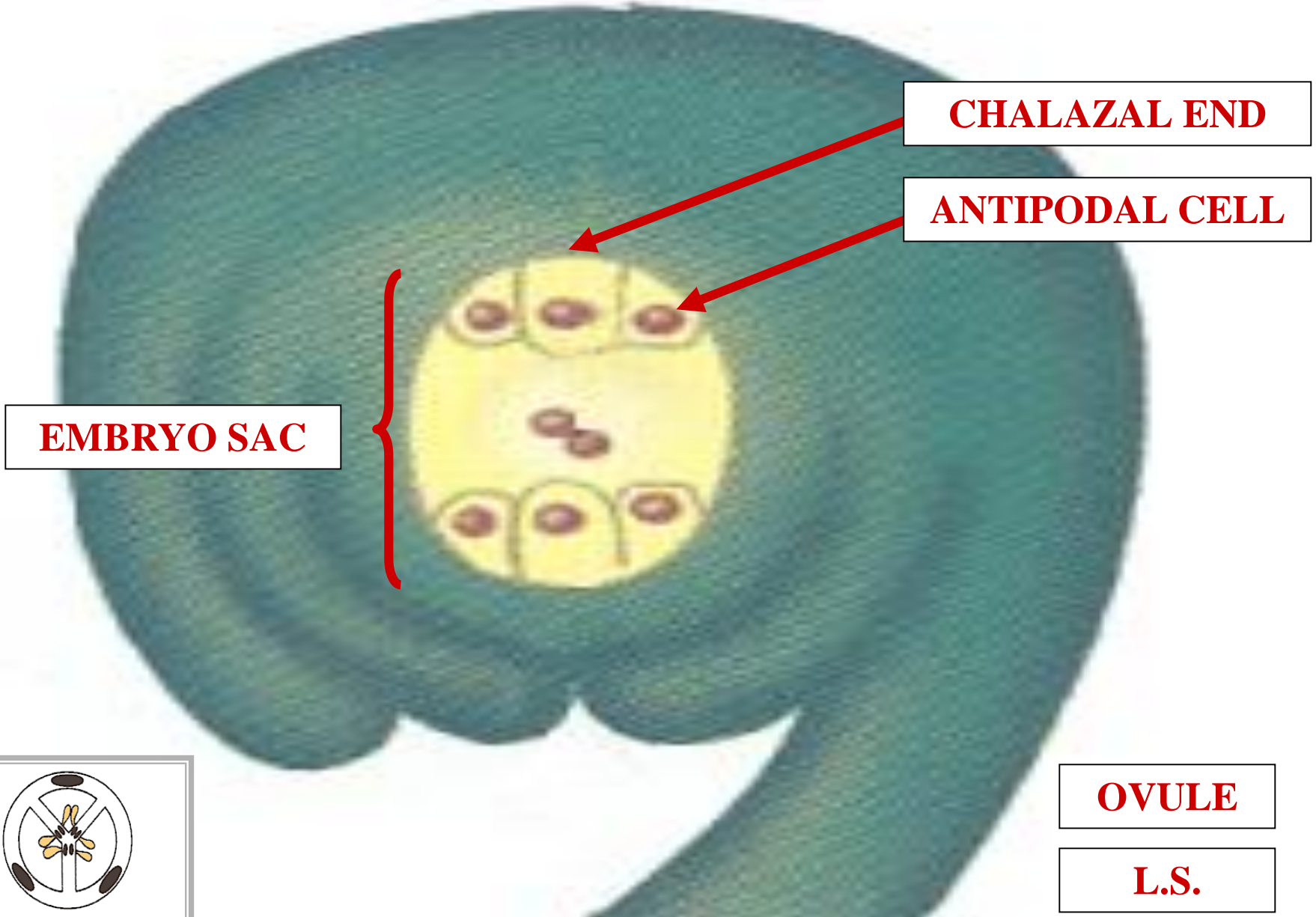
**CHALAZAL END**

**EMBRYO SAC**

**OVULE**

**L.S.**

# ANGIOSPERM OVULE



**CHALAZAL END**

**ANTIPODAL CELL**

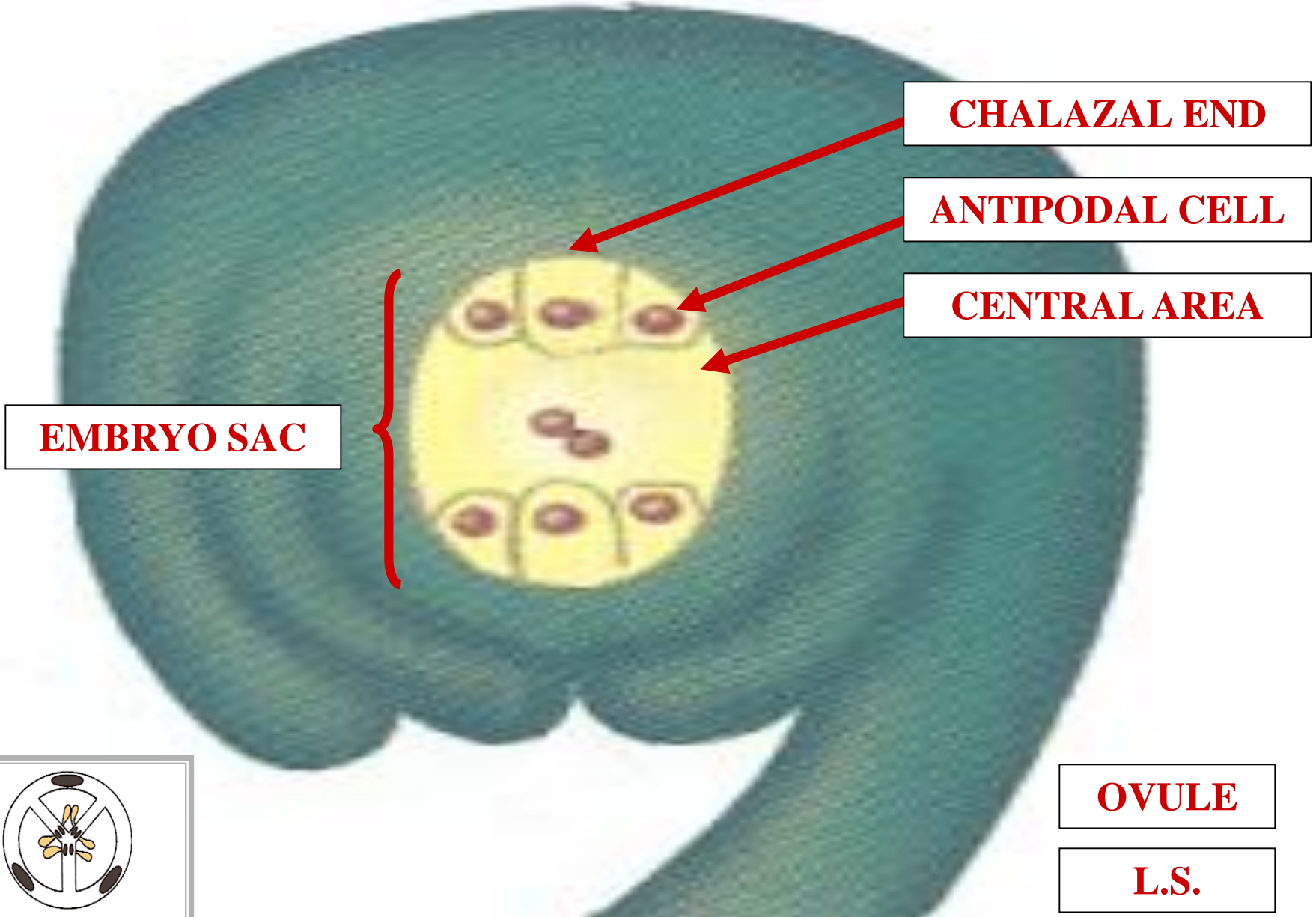
**EMBRYO SAC**

**OVULE**

**L.S.**



# ANGIOSPERM OVULE



**CHALAZAL END**

**ANTIPODAL CELL**

**CENTRAL AREA**

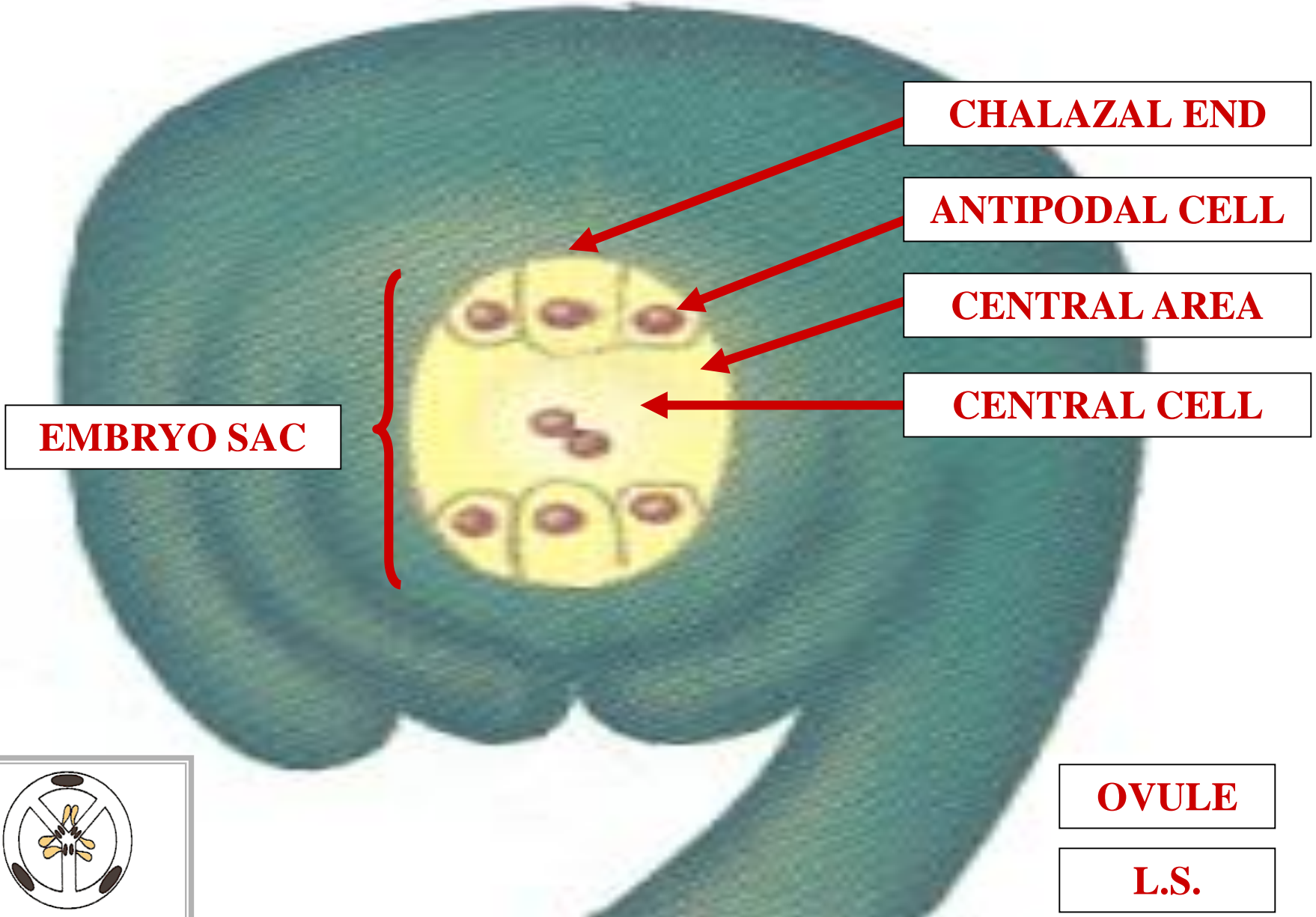
**EMBRYO SAC**

**OVULE**

**L.S.**



# ANGIOSPERM OVULE



**CHALAZAL END**

**ANTIPODAL CELL**

**CENTRAL AREA**

**CENTRAL CELL**

**EMBRYO SAC**

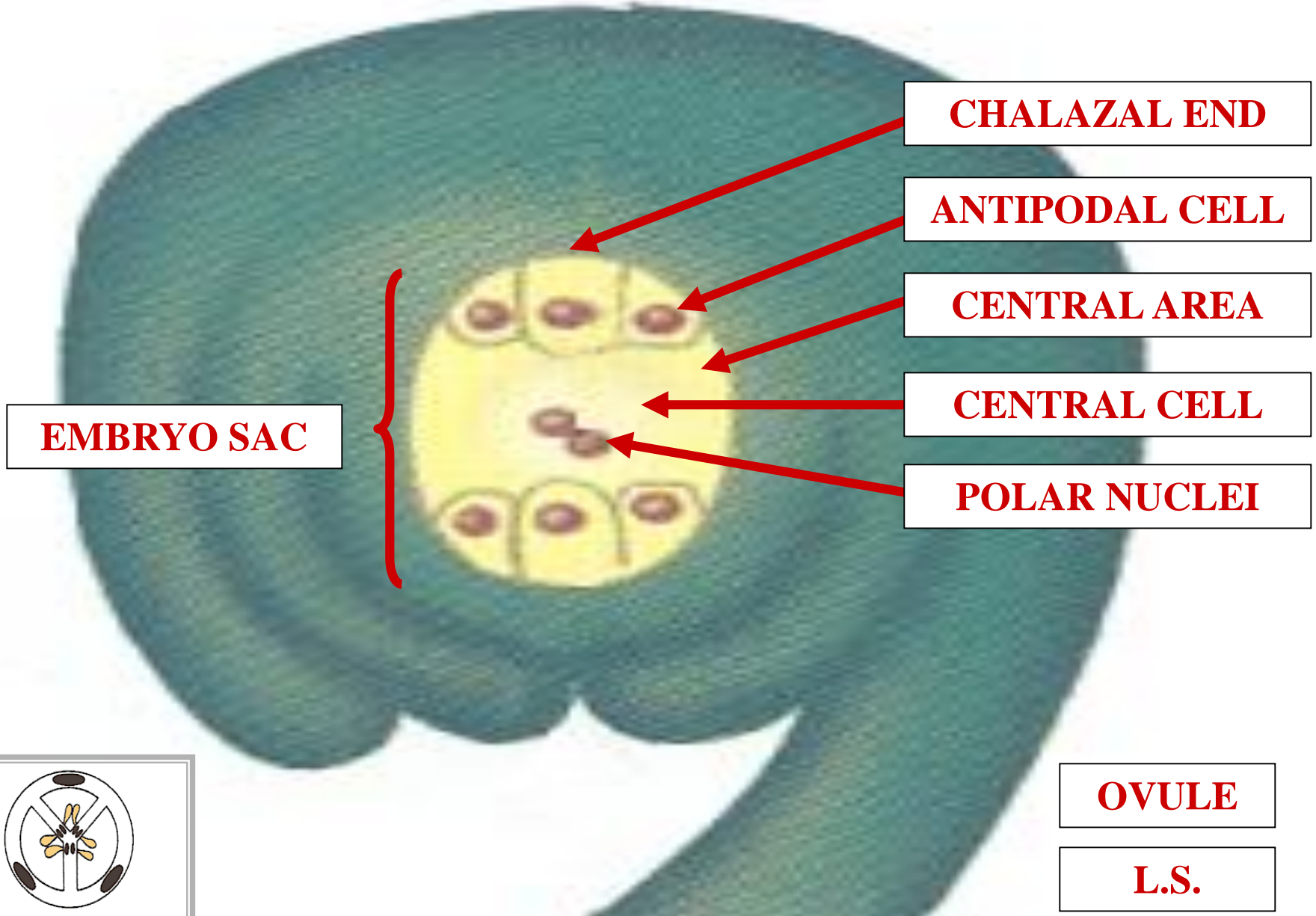
**OVULE**

**L.S.**





# ANGIOSPERM OVULE



**CHALAZAL END**

**ANTIPODAL CELL**

**CENTRAL AREA**

**CENTRAL CELL**

**POLAR NUCLEI**

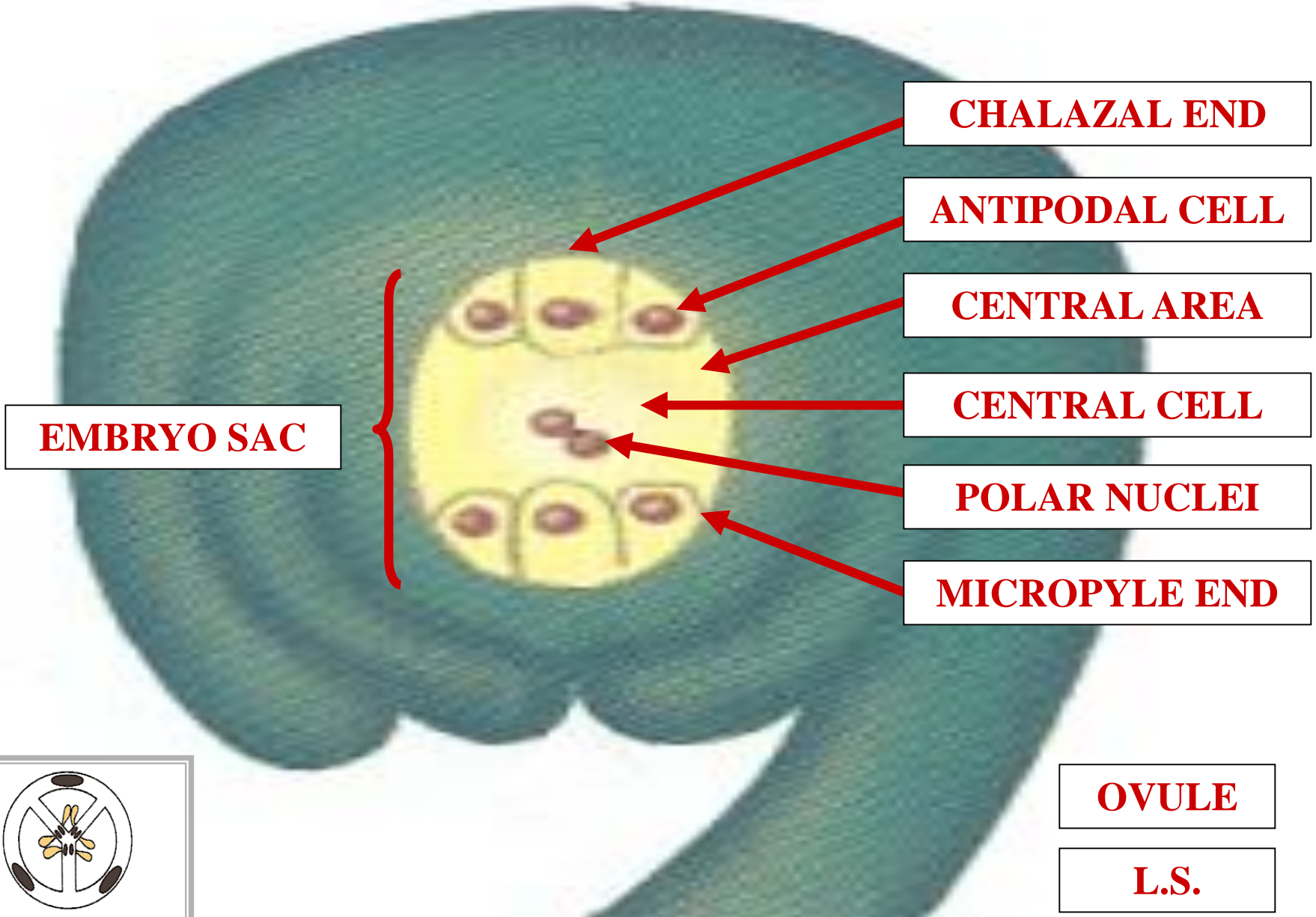
**EMBRYO SAC**

**OVULE**

**L.S.**



# ANGIOSPERM OVULE



**CHALAZAL END**

**ANTIPODAL CELL**

**CENTRAL AREA**

**CENTRAL CELL**

**POLAR NUCLEI**

**MICROPYLE END**

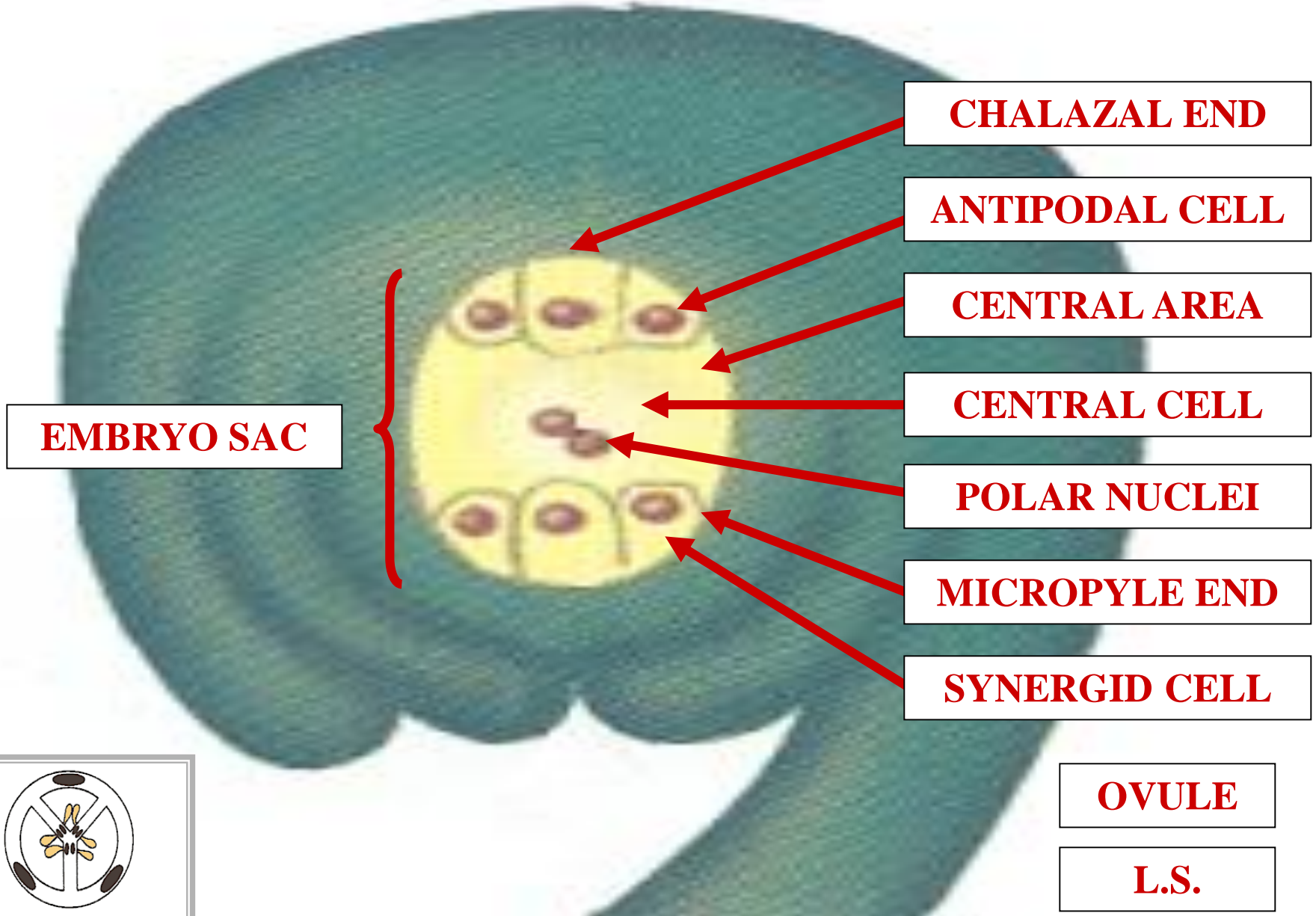
**EMBRYO SAC**

**OVULE**

**L.S.**



# ANGIOSPERM OVULE



# MATURE EMBRYO SAC

**OVULE**

**CHALAZAL END**

**ANTIPODAL CELL**

**CENTRAL AREA**

**CENTRAL CELL**

**POLAR NUCLEI**

**MICROPYLE END**

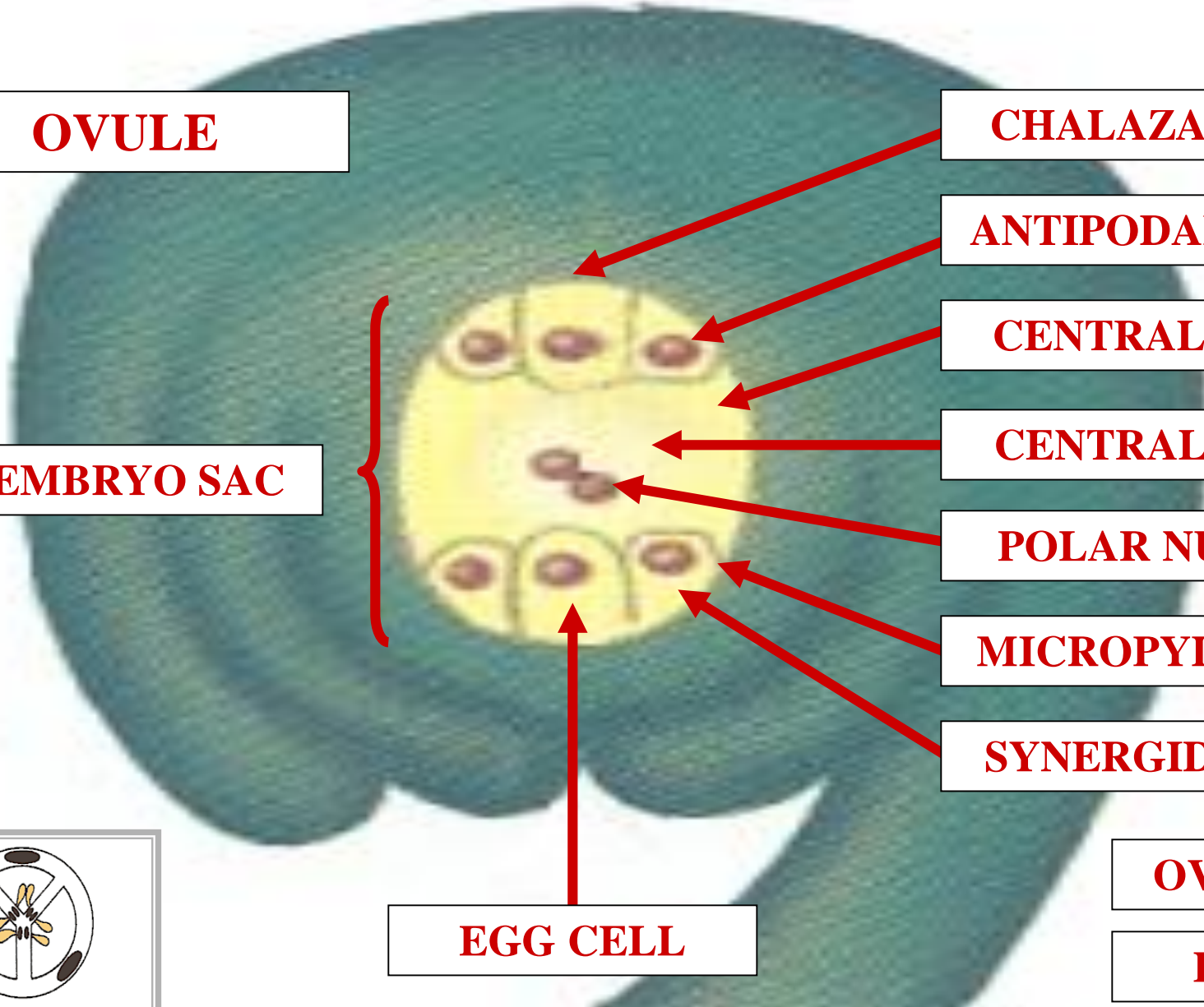
**SYNERGID CELL**

**EMBRYO SAC**

**OVULE**

**L.S.**

**EGG CELL**



# POLLINATION



# POLLINATION



**PLANT 1**



**PLANT 2**



**= POLLEN GRAIN**



**PLANT 1**



**PLANT 2**

 = **POLLEN GRAIN**





**PLANT 1**



**PLANT 2**

 = **POLLEN GRAIN**



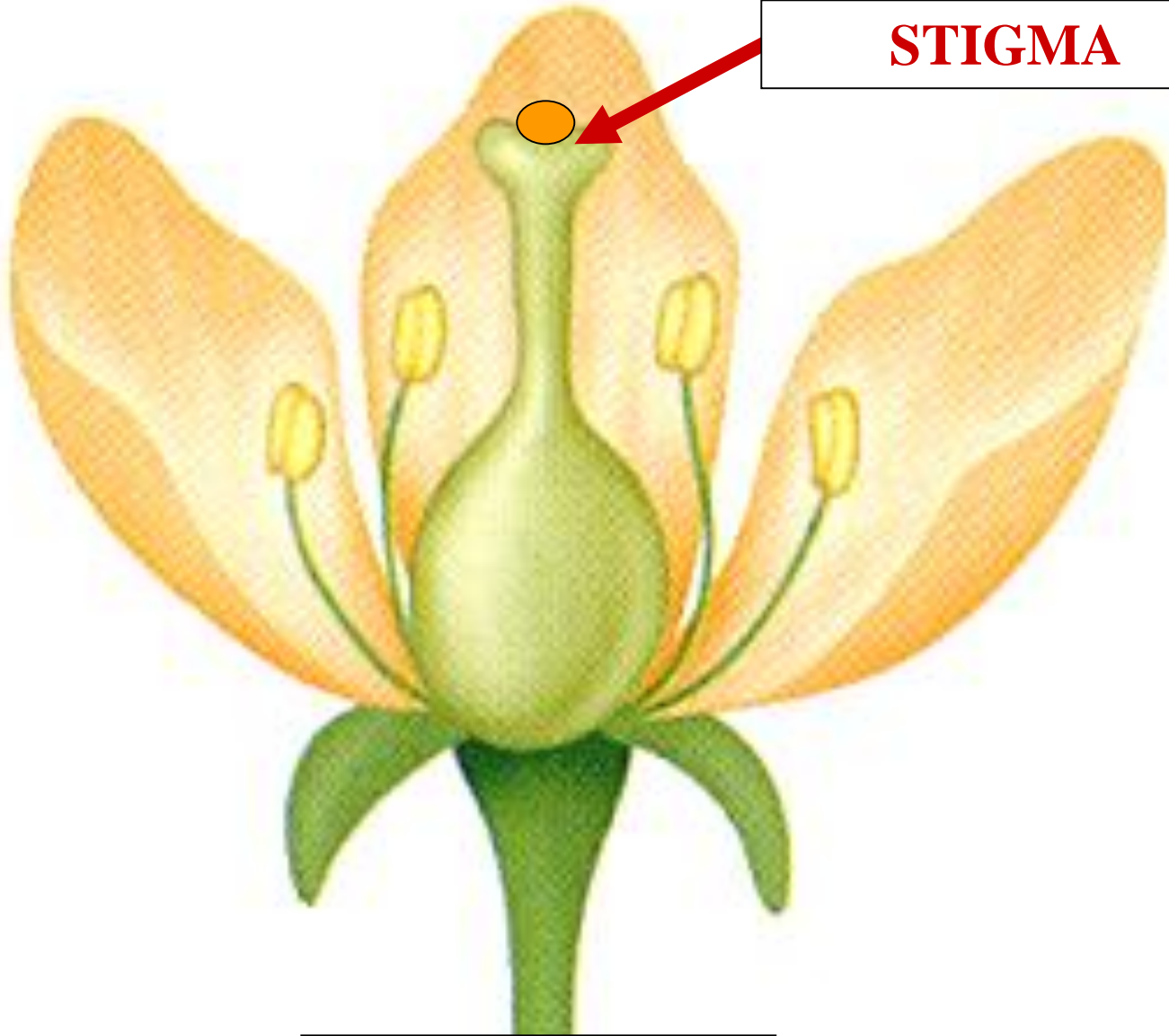
**PLANT 1**



**PLANT 2**



**= POLLEN GRAIN**

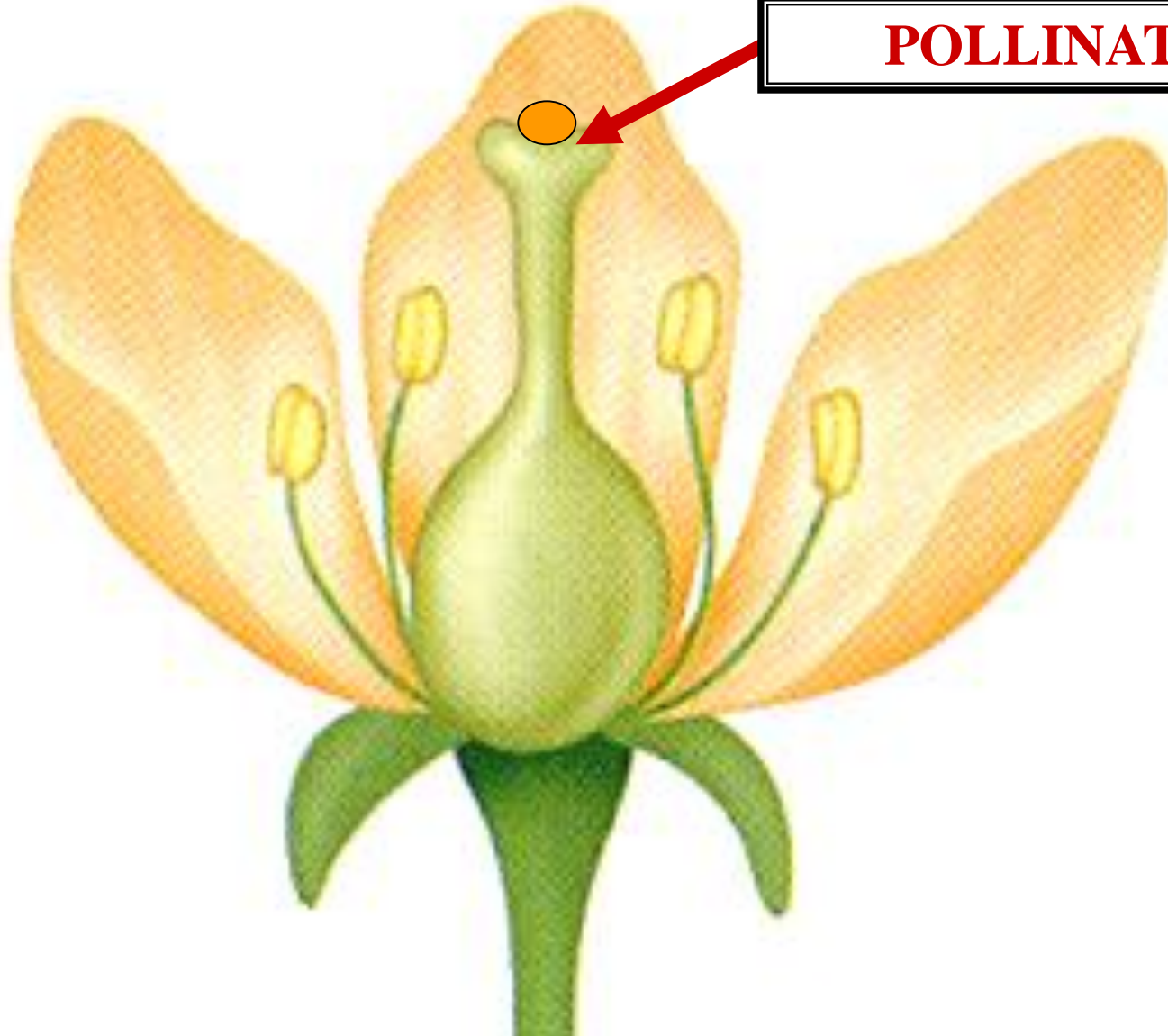


**STIGMA**

**FLOWER**

● = POLLEN GRAIN

**POLLINATION**



**FLOWER**

 = POLLEN GRAIN

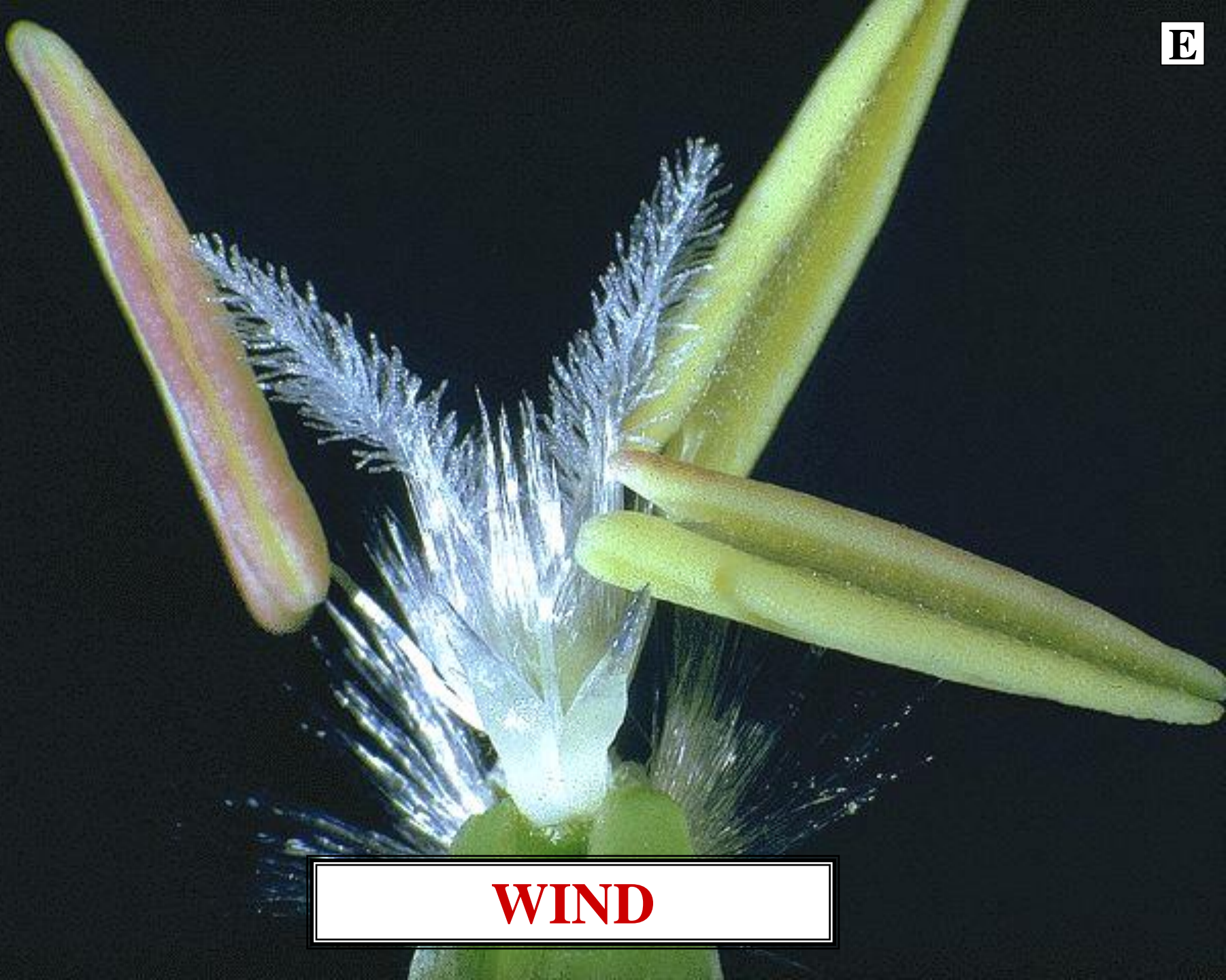
# POLLINATION VECTORS



# **ANEMOPHILOUS POLLINATION**



**ANEMOPHILOUS**

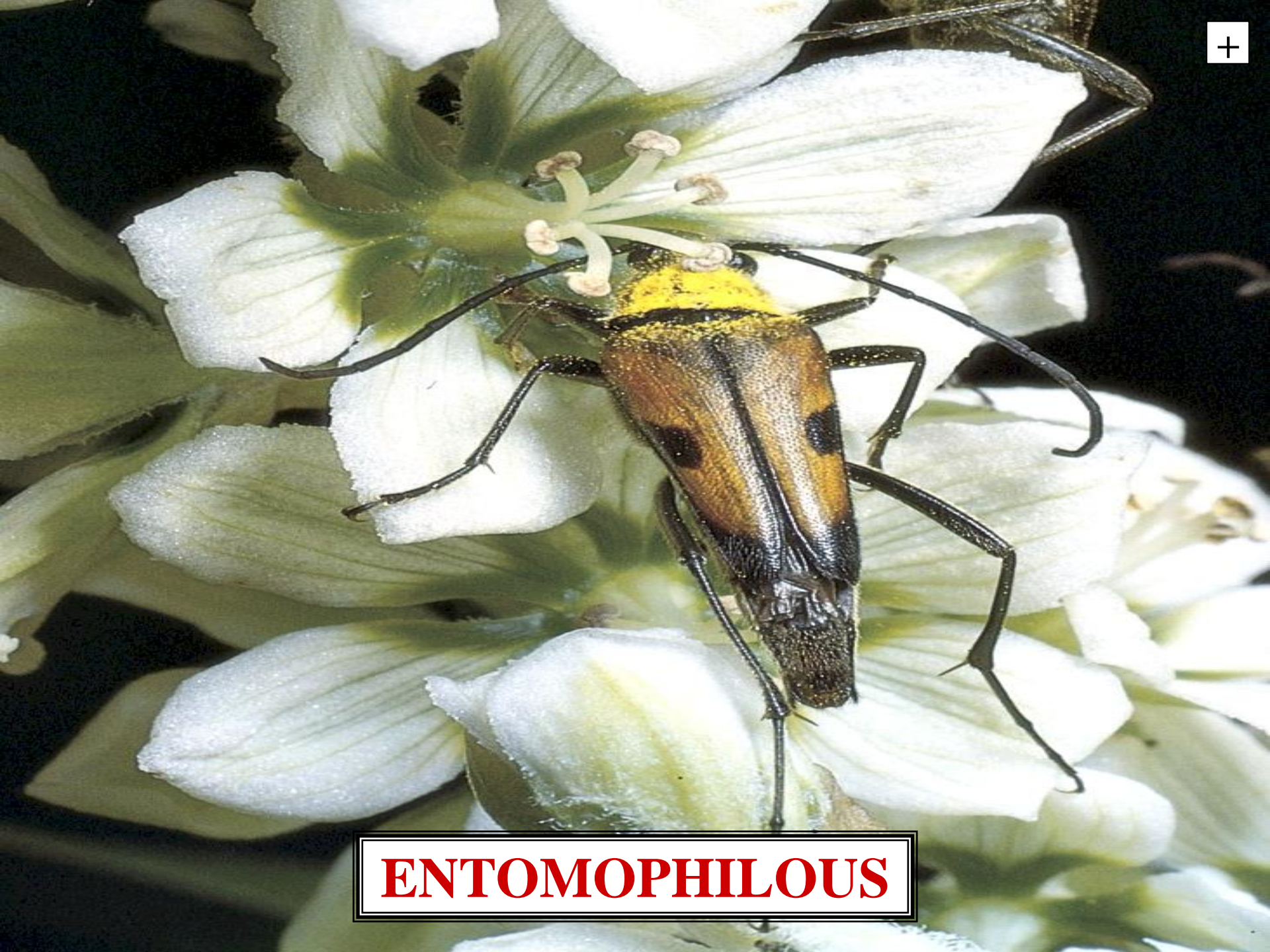


**WIND**

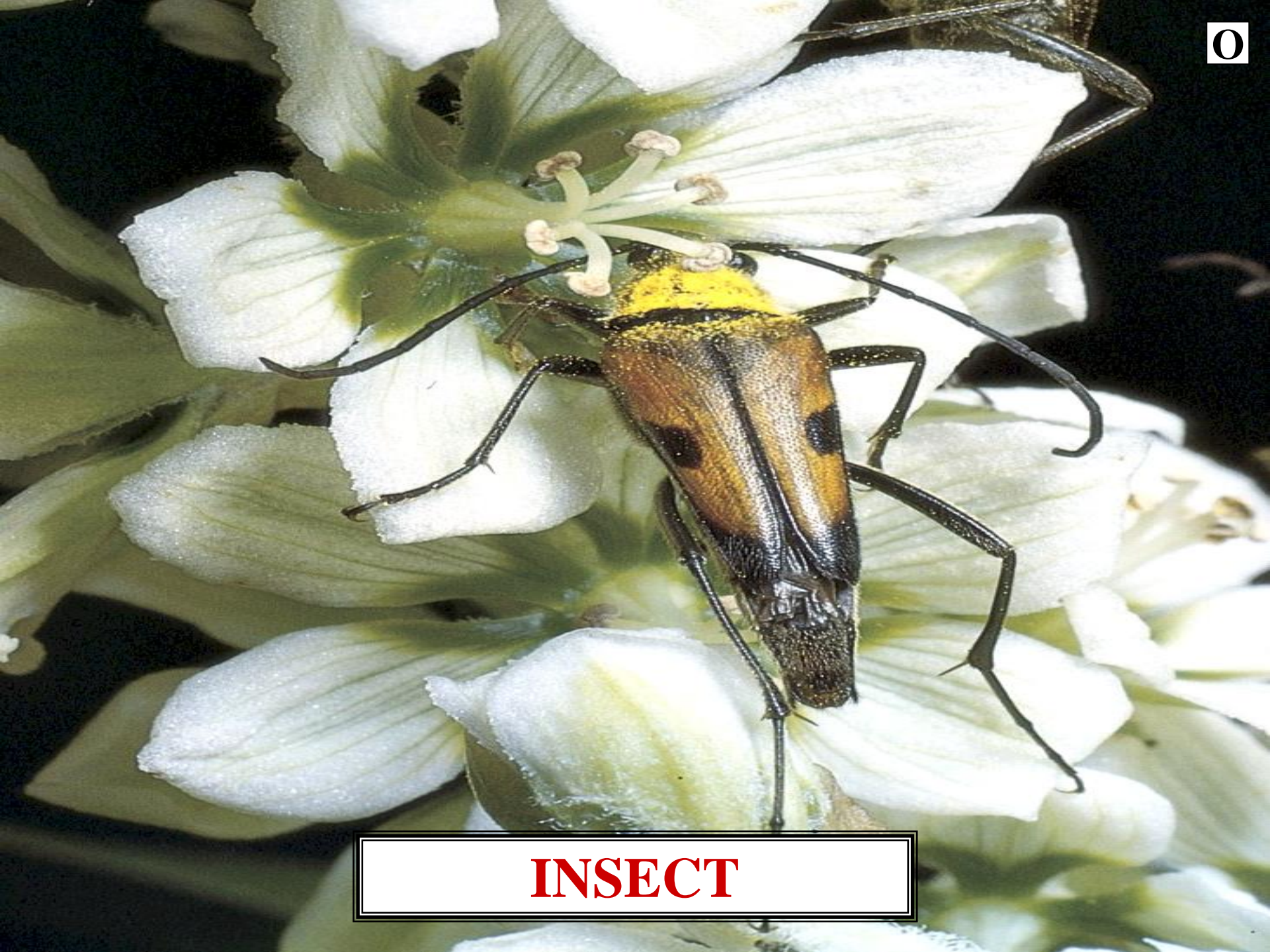




# ENTOMOPHILOUS POLLINATION



**ENTOMOPHILOUS**



**INSECT**



# ORNITHOPHILOUS POLLINATION



**ORNITHOPHILOUS**



**BIRD**



# CHEIROPTEROPHILOUS POLLINATION

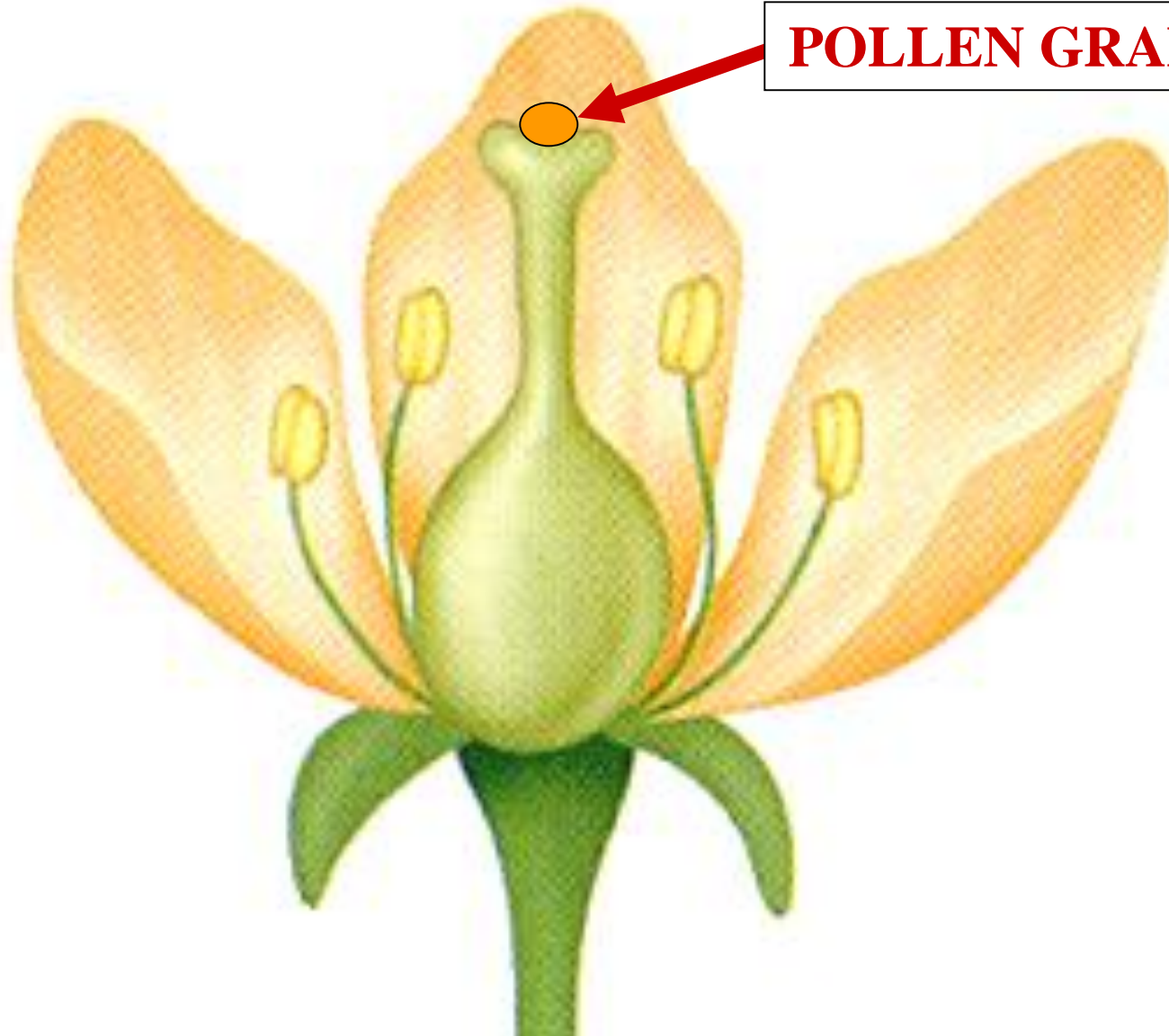


**CHEIROPTEROPHILOUS**





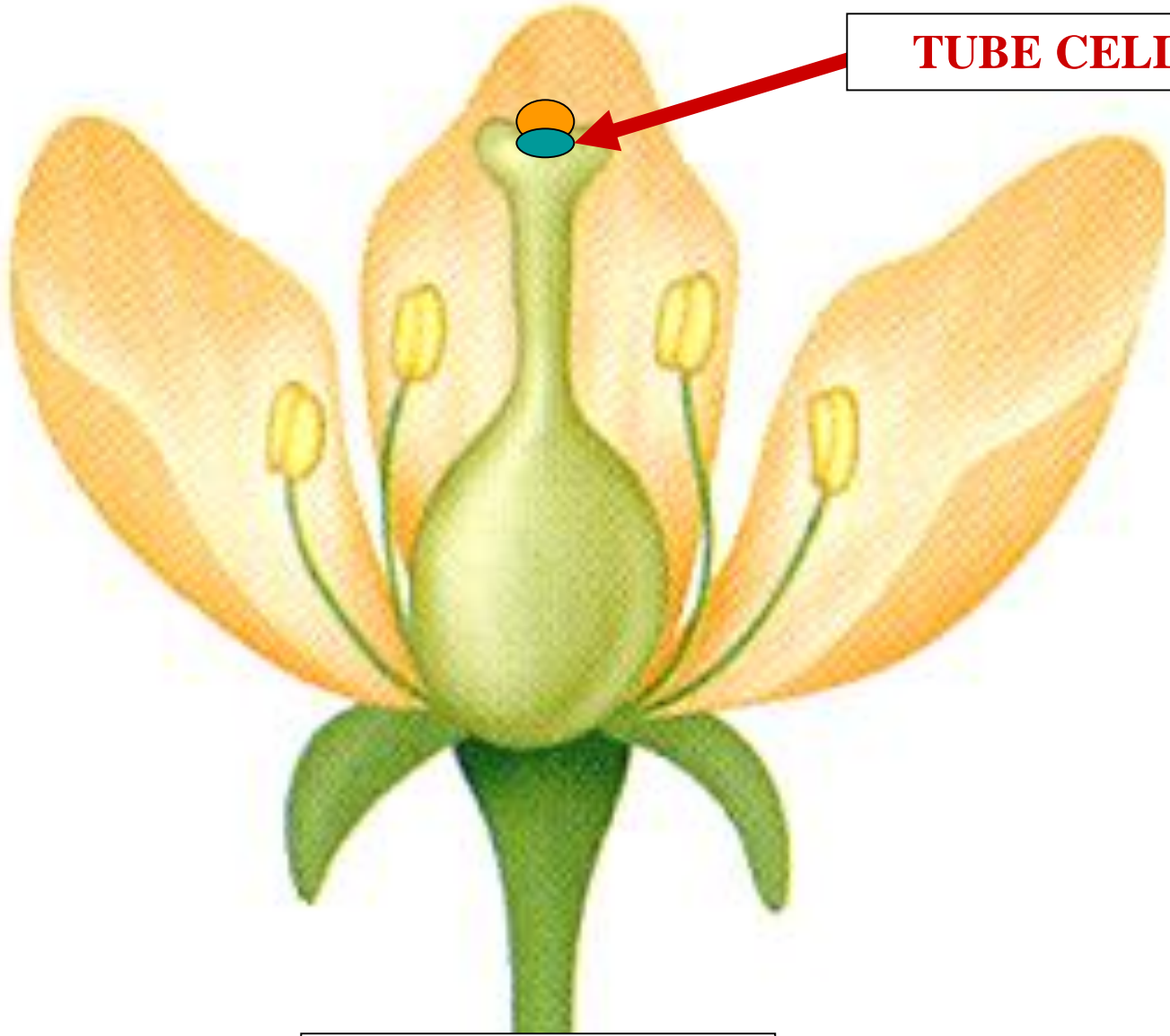
**BAT**



**POLLEN GRAIN**

**FLOWER**

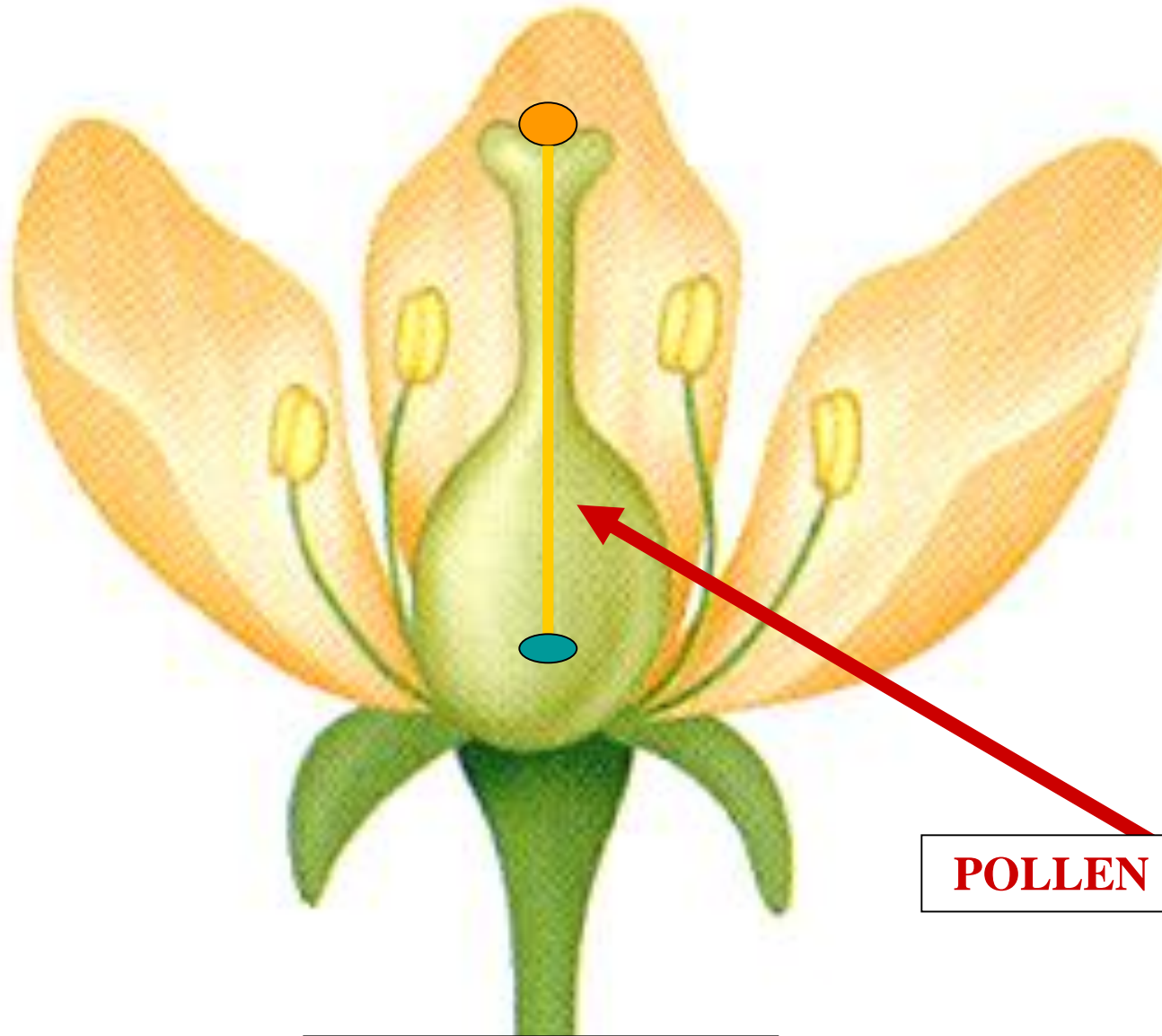
 = **POLLEN GRAIN**



**TUBE CELL**

**FLOWER**

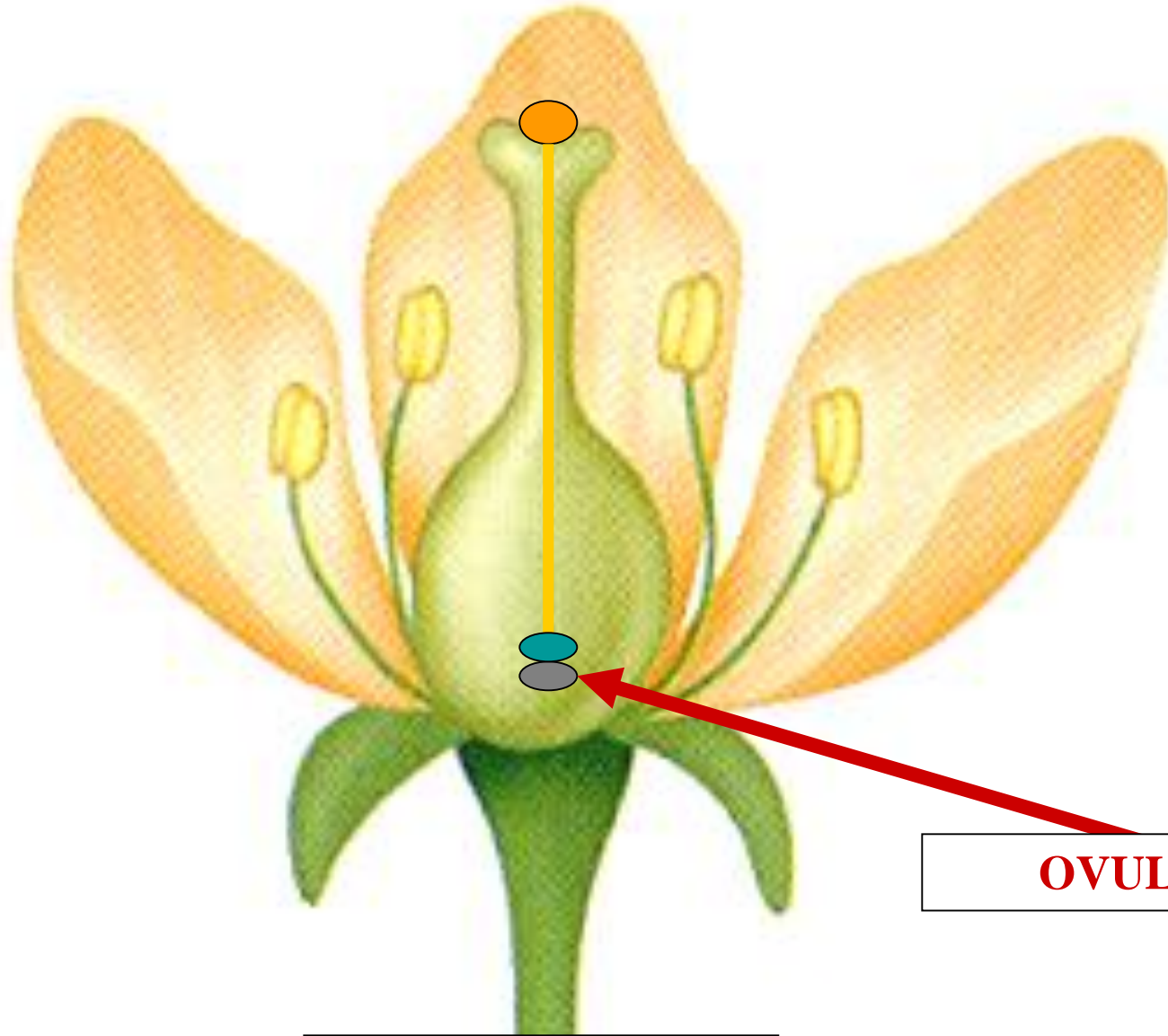
 = **POLLEN GRAIN**



**POLLEN TUBE**

**FLOWER**

**● = POLLEN GRAIN**



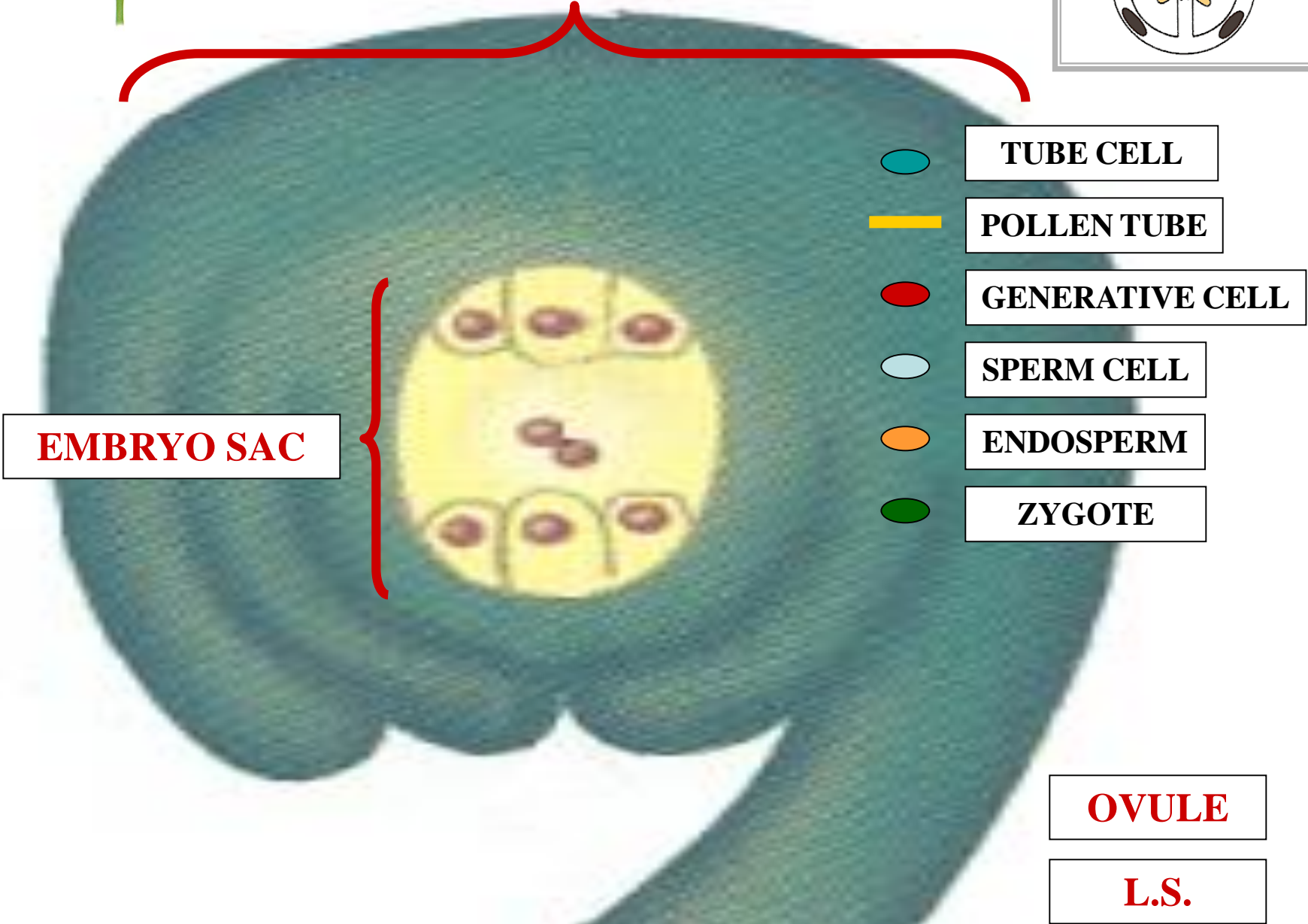
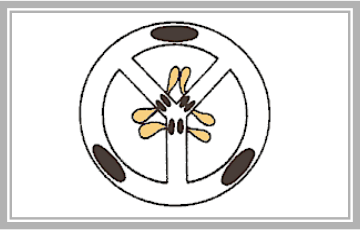
**OVULE**

**FLOWER**

 = **POLLEN GRAIN**



**OVULE**



**TUBE CELL**

**POLLEN TUBE**

**GENERATIVE CELL**

**SPERM CELL**

**ENDOSPERM**

**ZYGOTE**

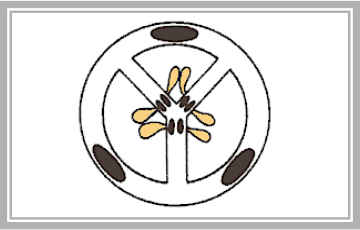
**EMBRYO SAC**

**OVULE**







**L.S.**



**OVULE**

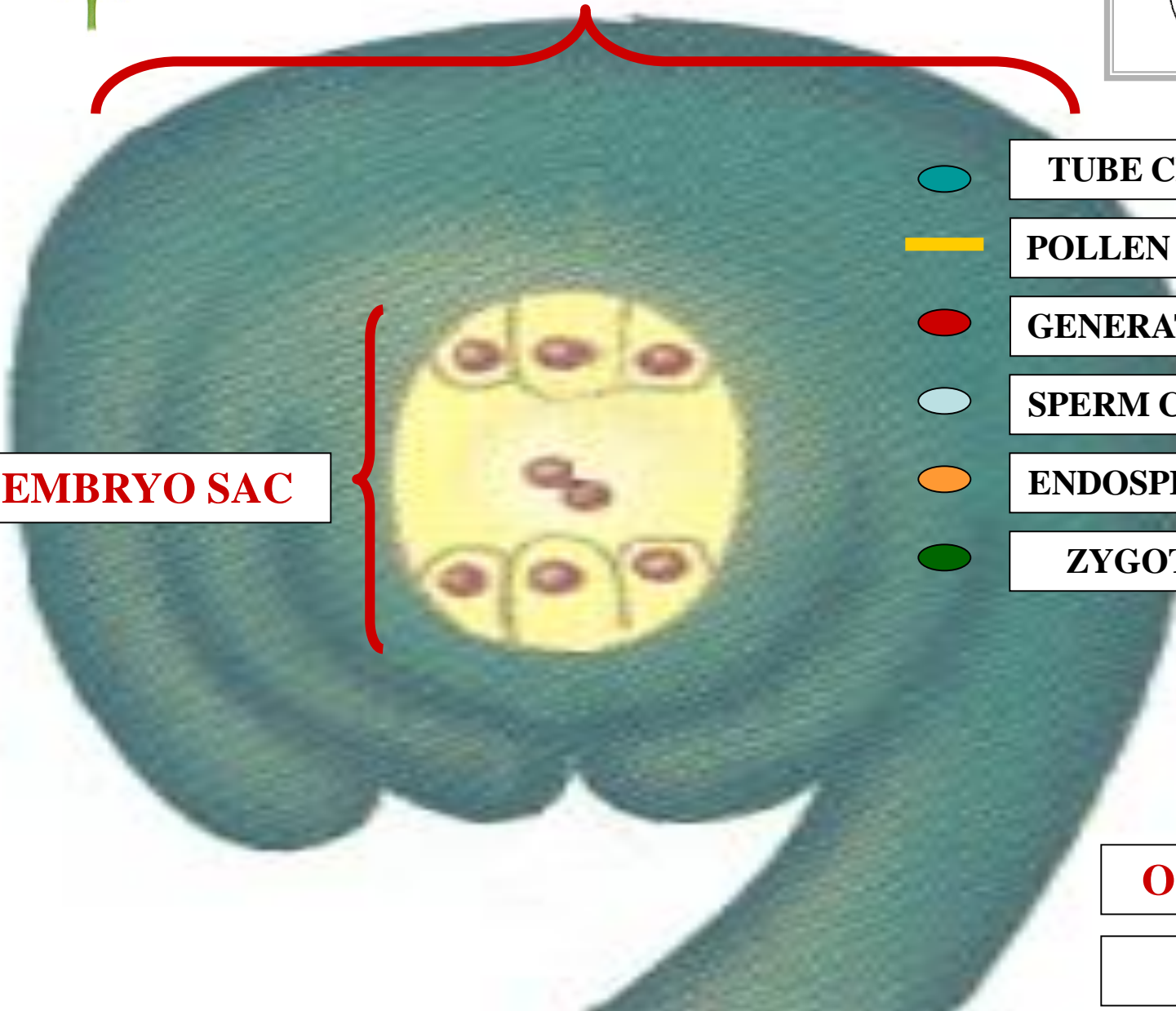


**EMBRYO SAC**

-  **TUBE CELL**
-  **POLLEN TUBE**
-  **GENERATIVE CELL**
-  **SPERM CELL**
-  **ENDOSPERM**
-  **ZYGOTE**

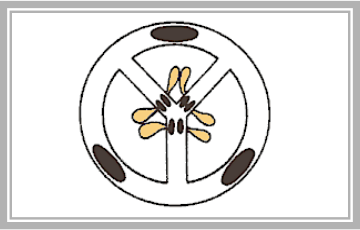
**OVULE**

**L.S.**











**OVULE**



**EMBRYO SAC**

-  **TUBE CELL**
-  **POLLEN TUBE**
-  **GENERATIVE CELL**
-  **SPERM CELL**
-  **ENDOSPERM**
-  **ZYGOTE**

**OVULE**

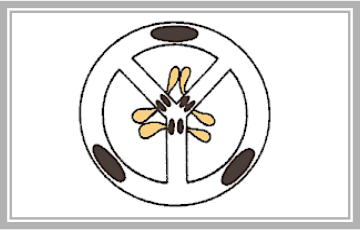
**L.S.**













**OVULE**



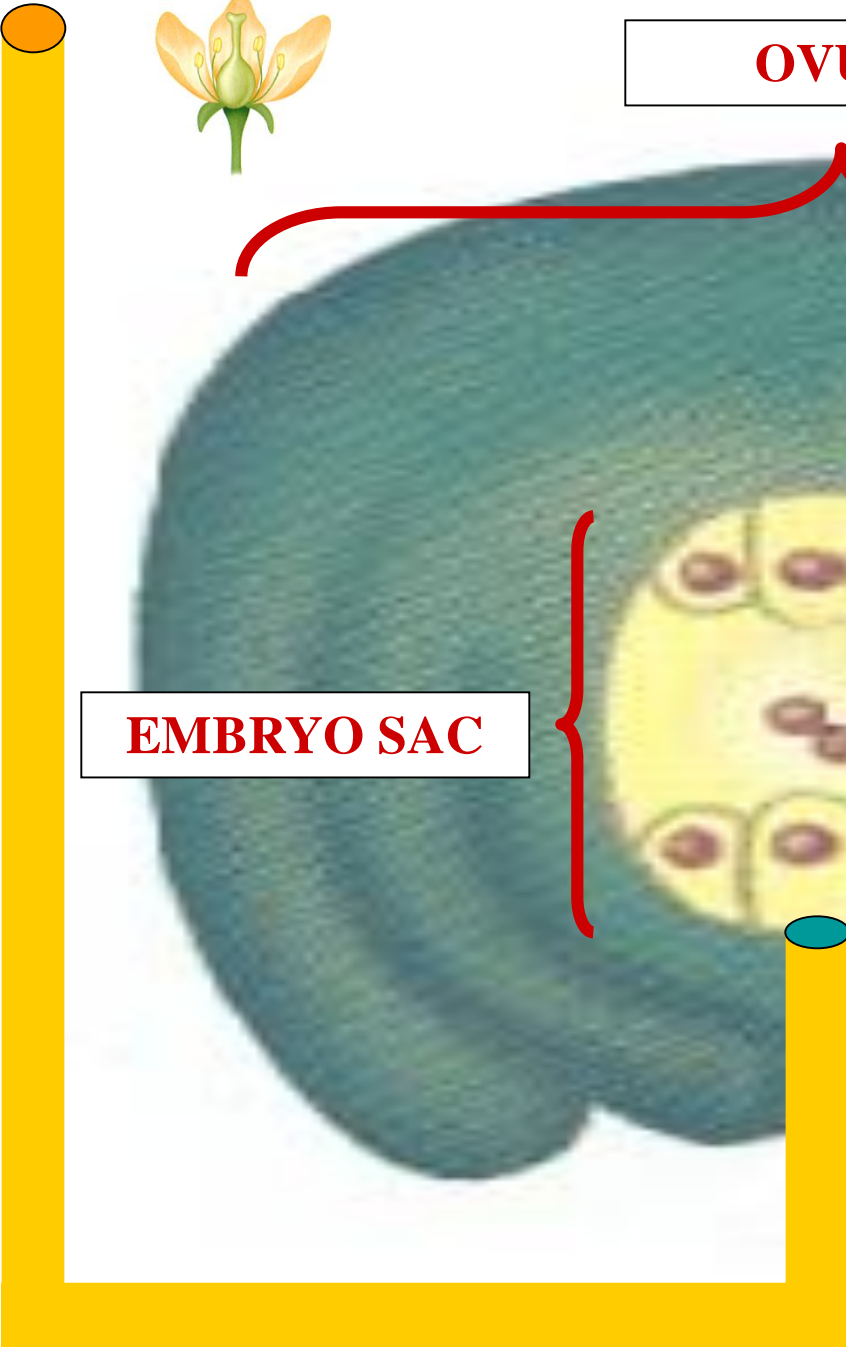
**EMBRYO SAC**

-  **TUBE CELL**
-  **POLLEN TUBE**
-  **GENERATIVE CELL**
-  **SPERM CELL**
-  **ENDOSPERM**
-  **ZYGOTE**

**MICROPYLE END**

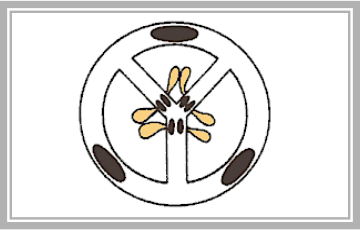
**OVULE**

**L.S.**





**OVULE**



**EMBRYO SAC**



**TUBE CELL**



**POLLEN TUBE**



**GENERATIVE CELL**



**SPERM CELL**



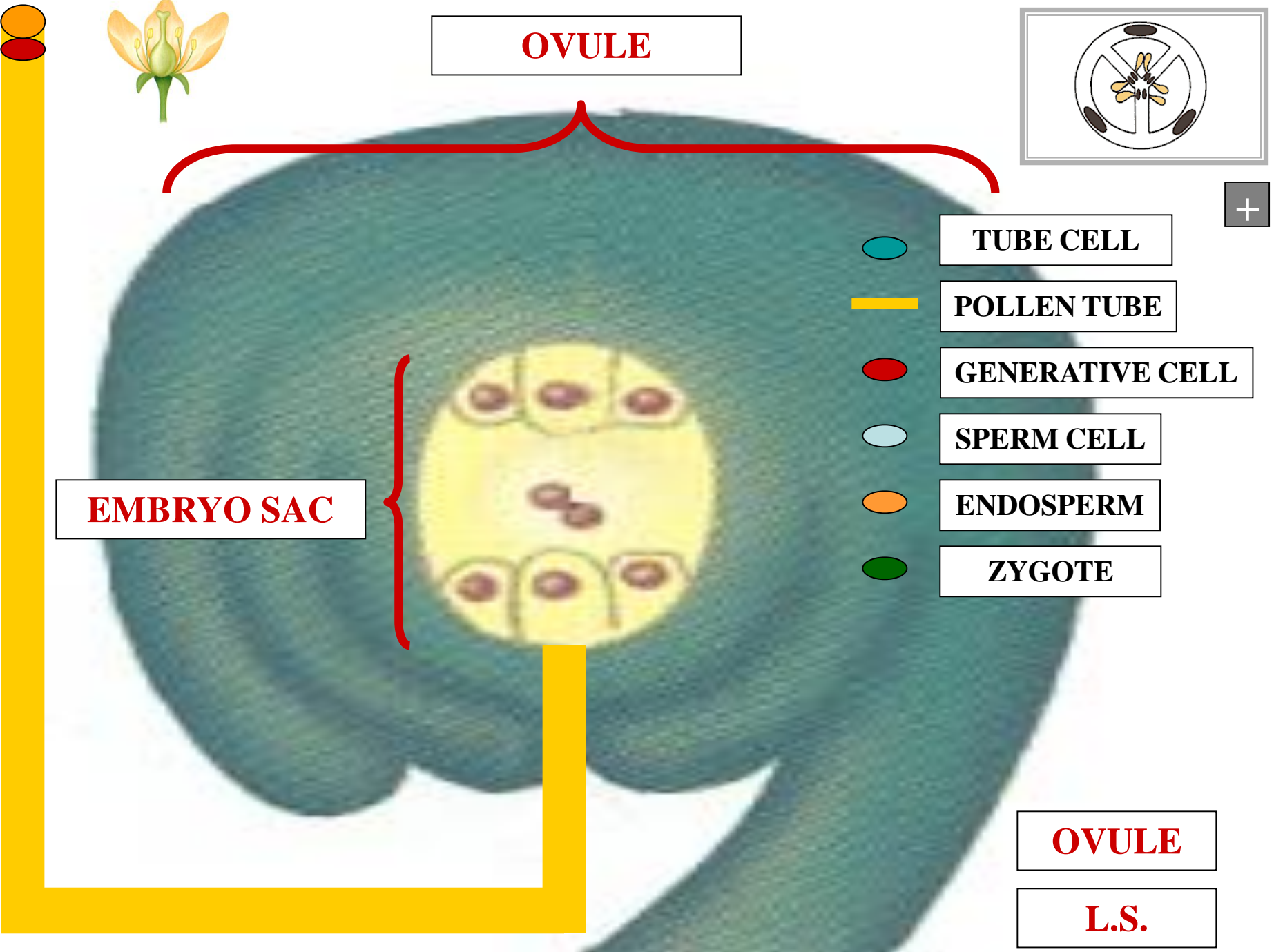
**ENDOSPERM**



**ZYGOTE**

**OVULE**

**L.S.**











**OVULE**



**EMBRYO SAC**

-  **TUBE CELL**
-  **POLLEN TUBE**
-  **GENERATIVE CELL**
-  **SPERM CELL**
-  **ENDOSPERM**
-  **ZYGOTE**

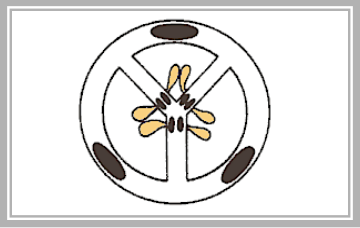
**OVULE**

**L.S.**











**OVULE**



**EMBRYO SAC**

-  **TUBE CELL**
-  **POLLEN TUBE**
-  **GENERATIVE CELL**
-  **SPERM CELL**
-  **ENDOSPERM**
-  **ZYGOTE**

**OVULE**

**L.S.**





**OVULE**



**EMBRYO SAC**



**TUBE CELL**



**POLLEN TUBE**



**GENERATIVE CELL**



**SPERM CELL**



**ENDOSPERM**



**ZYGOTE**

**OVULE**

**L.S.**





**OVULE**



**EMBRYO SAC**



**TUBE CELL**



**POLLEN TUBE**



**GENERATIVE CELL**



**SPERM CELL**



**ENDOSPERM**



**ZYGOTE**

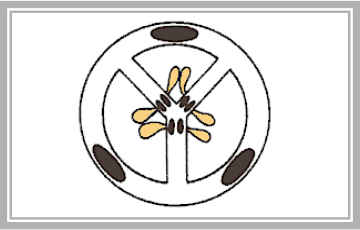
**OVULE**

**L.S.**











**OVULE**



M

**EMBRYO SAC**

-  **TUBE CELL**
-  **POLLEN TUBE**
-  **GENERATIVE CELL**
-  **SPERM CELL**
-  **ENDOSPERM**
-  **ZYGOTE**

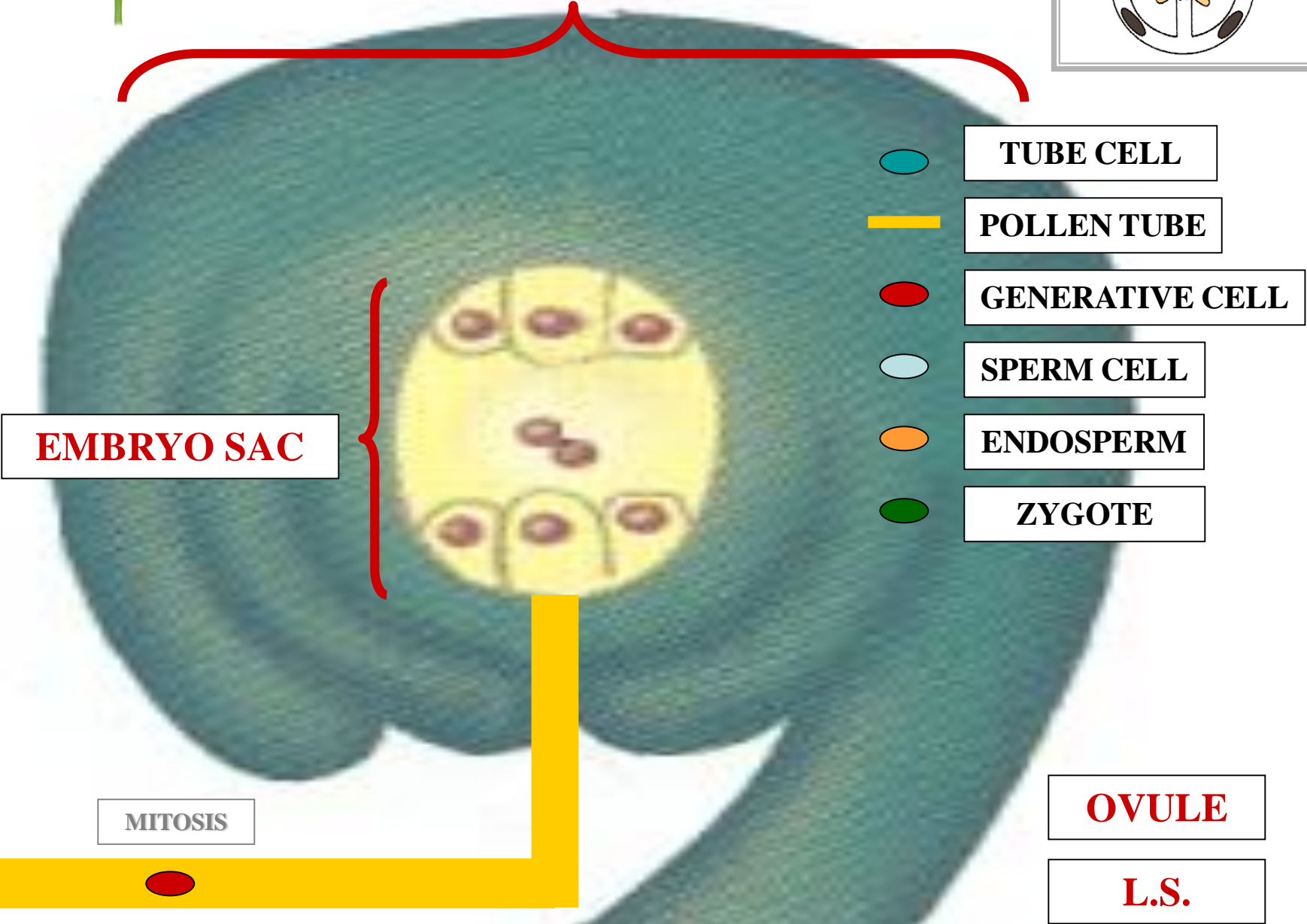
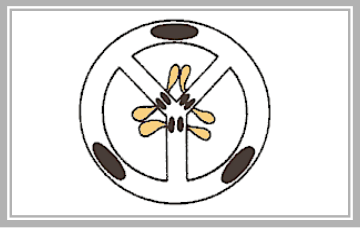
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**L.S.**





**OVULE**



**TUBE CELL**

**POLLEN TUBE**

**GENERATIVE CELL**

**SPERM CELL**

**ENDOSPERM**

**ZYGOTE**

**EMBRYO SAC**

**MITOSIS**

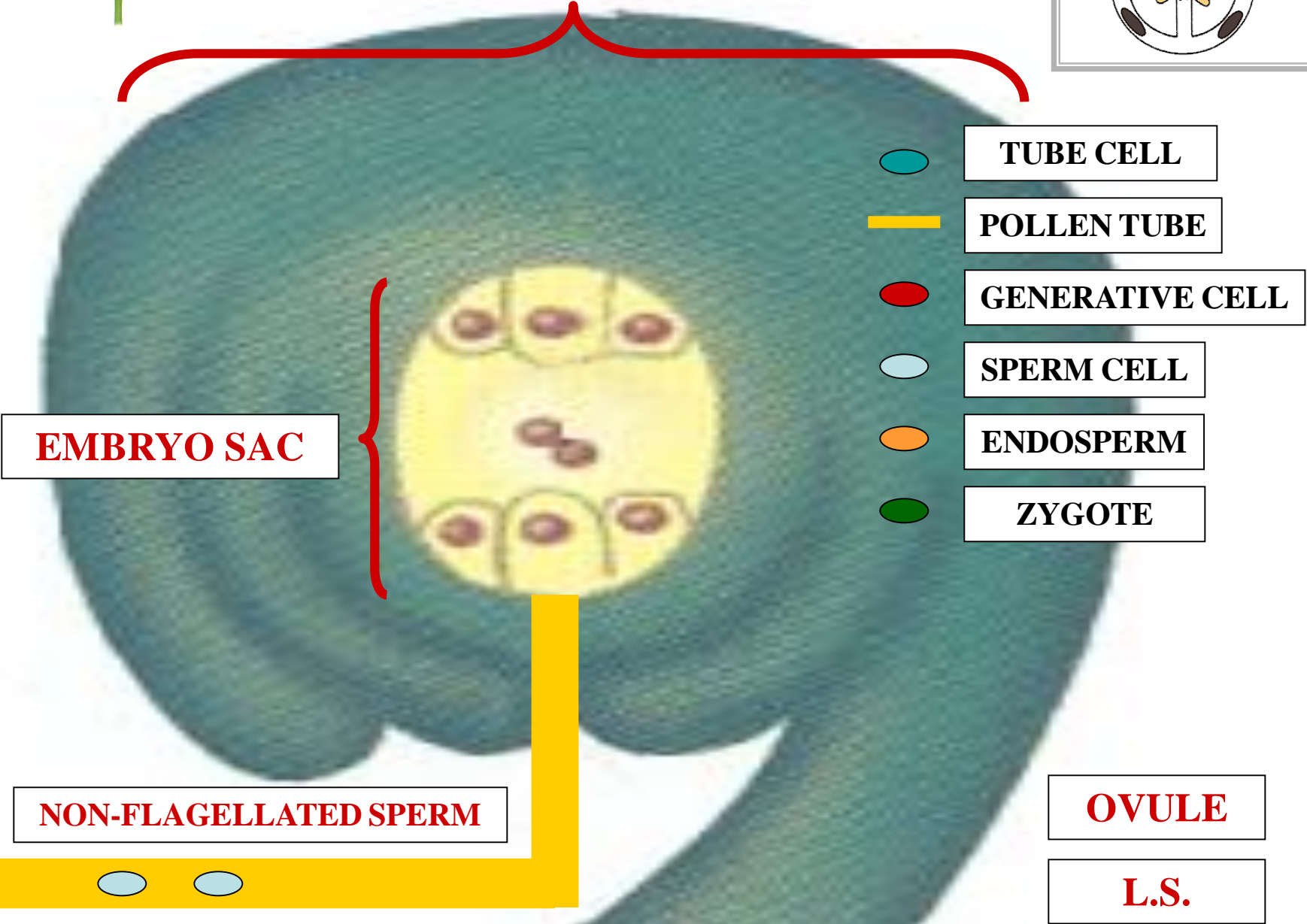
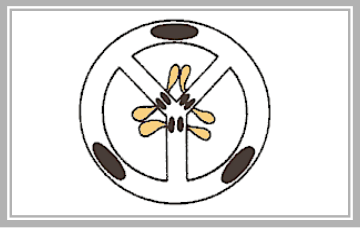
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**L.S.**





**OVULE**



**TUBE CELL**

**POLLEN TUBE**

**GENERATIVE CELL**

**SPERM CELL**

**ENDOSPERM**

**ZYGOTE**

**EMBRYO SAC**

**NON-FLAGELLATED SPERM**

**OVULE**

**L.S.**



**OVULE**



**EMBRYO SAC**

**TUBE CELL**

**POLLEN TUBE**

**GENERATIVE CELL**

**SPERM CELL**

**ENDOSPERM**

**ZYGOTE**

**DOUBLE FERTILIZATION**

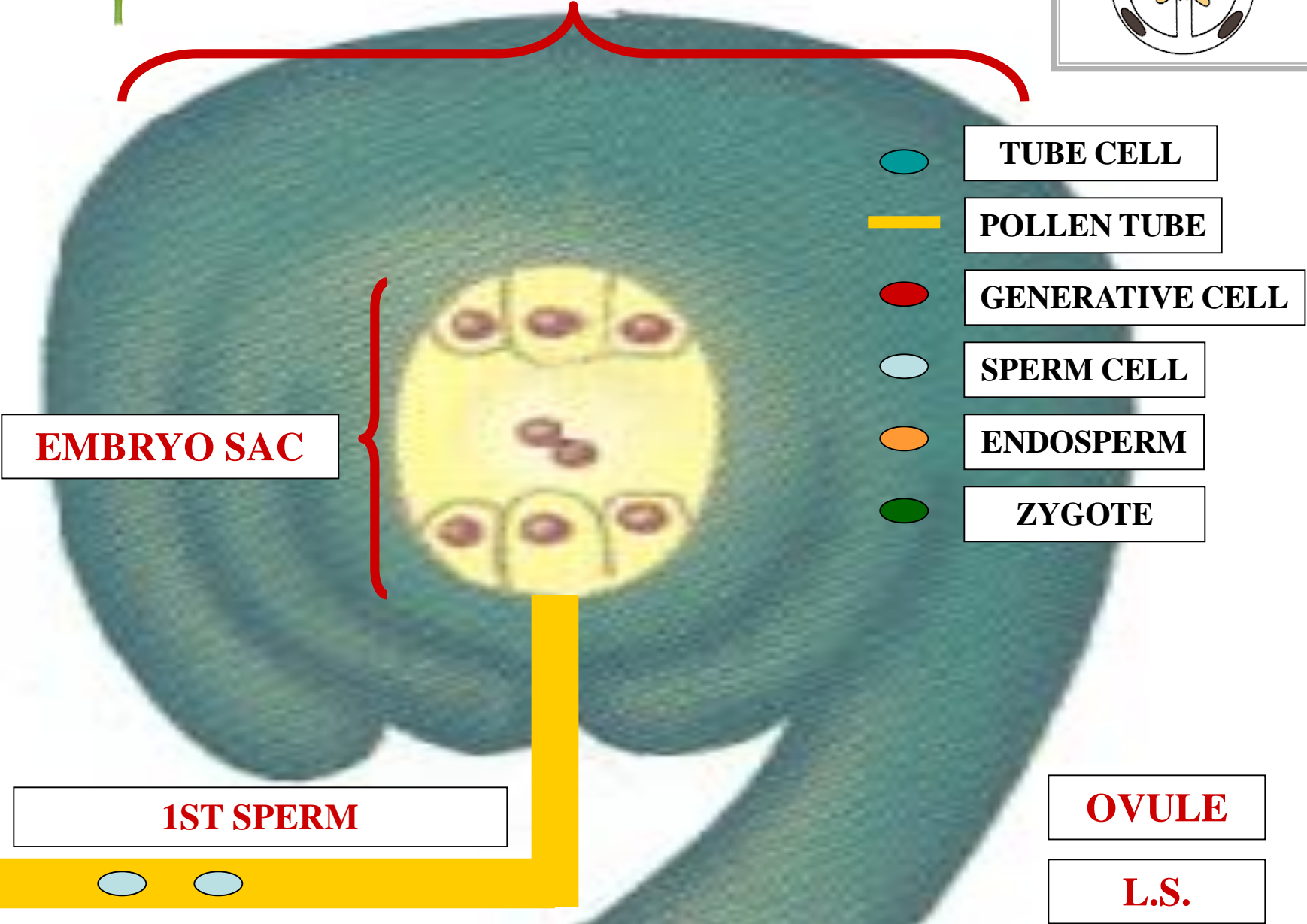
**OVULE**

**L.S.**





**OVULE**



**TUBE CELL**

**POLLEN TUBE**

**GENERATIVE CELL**

**SPERM CELL**

**ENDOSPERM**

**ZYGOTE**

**EMBRYO SAC**

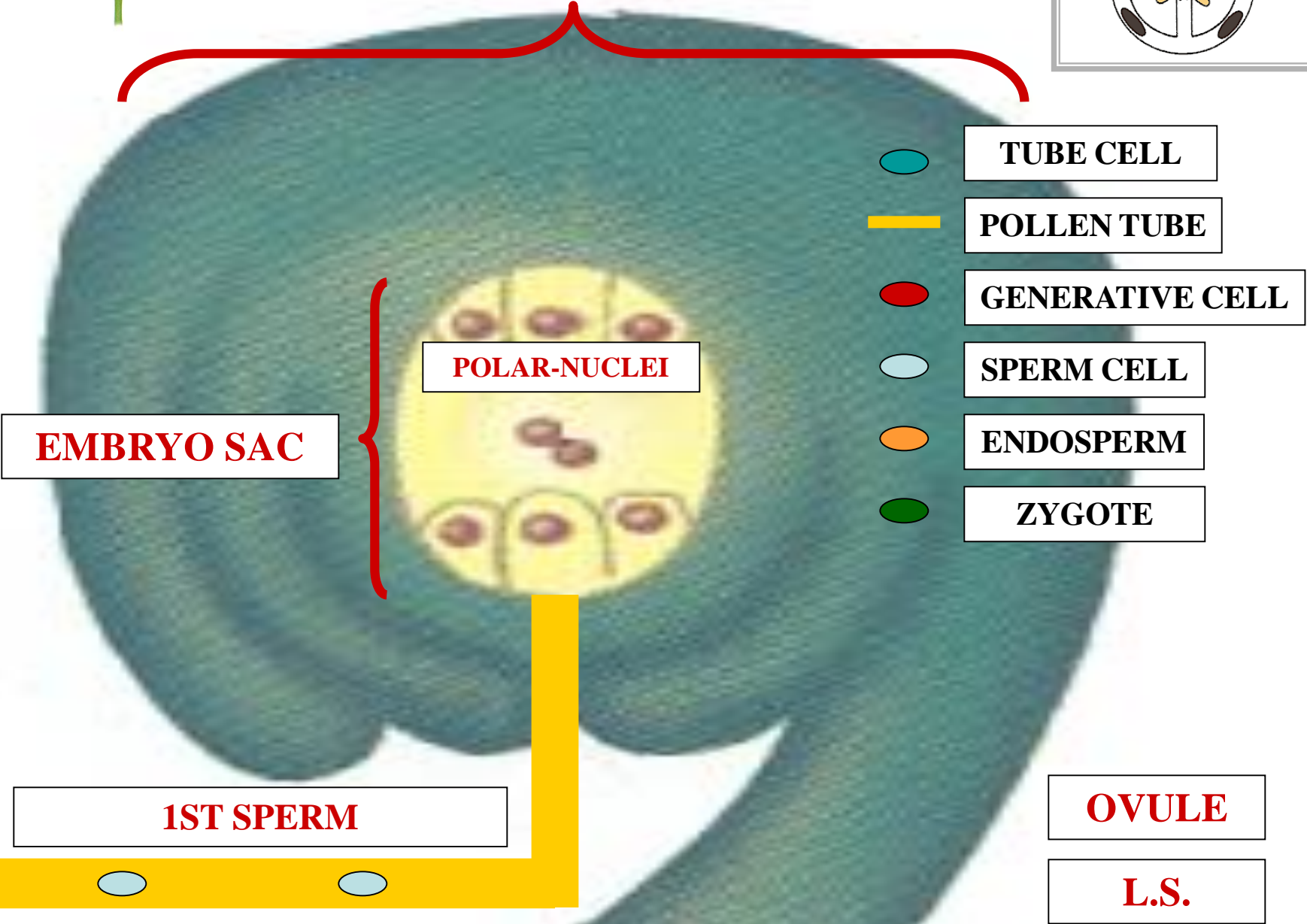
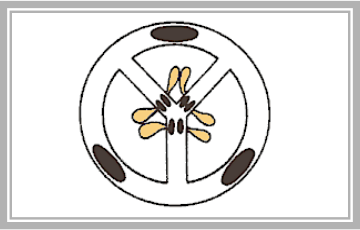
**1ST SPERM**

**OVULE**

**L.S.**



**OVULE**



**TUBE CELL**

**POLLEN TUBE**

**GENERATIVE CELL**

**SPERM CELL**

**ENDOSPERM**

**ZYGOTE**

**EMBRYO SAC**

**POLAR-NUCLEI**

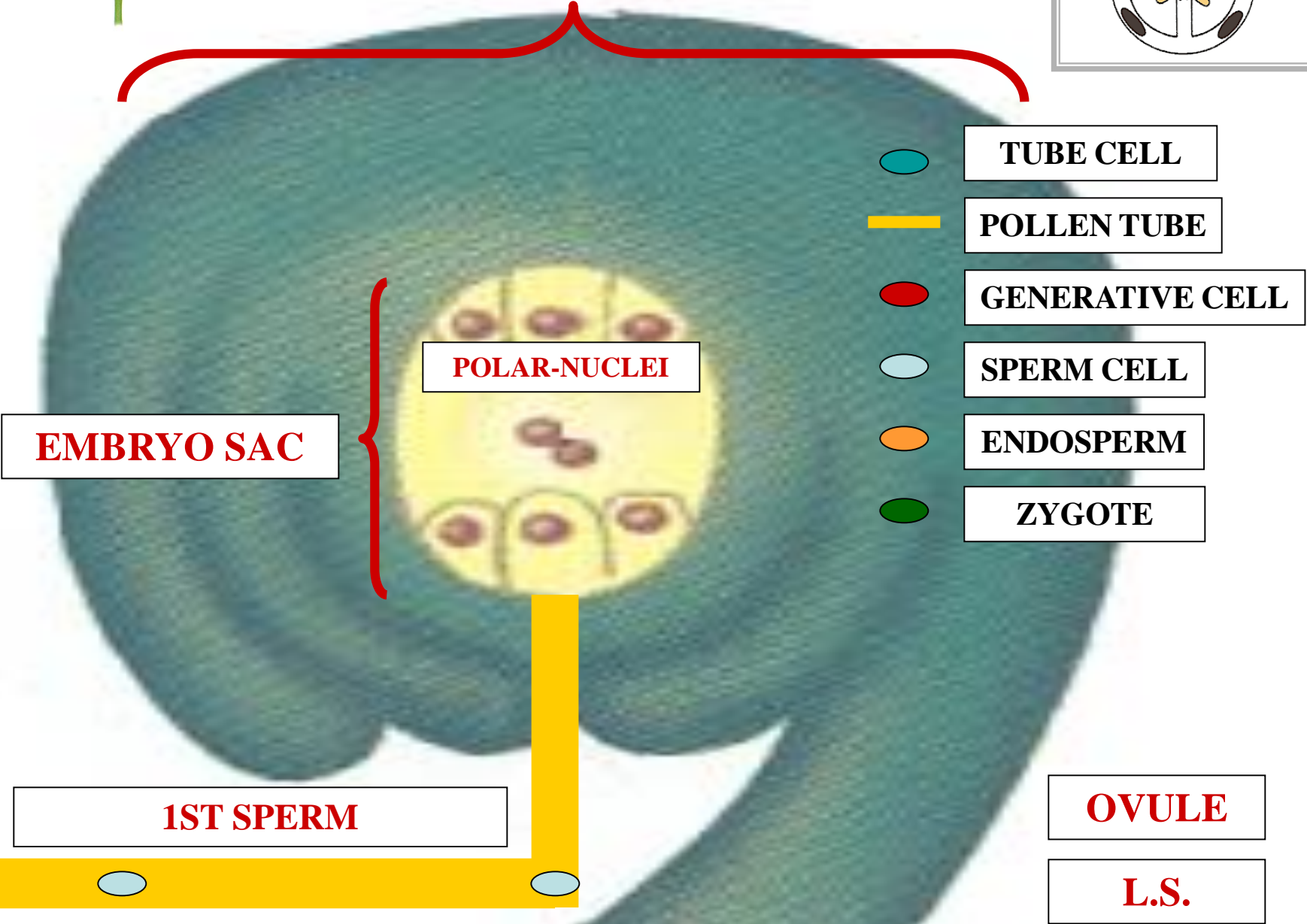
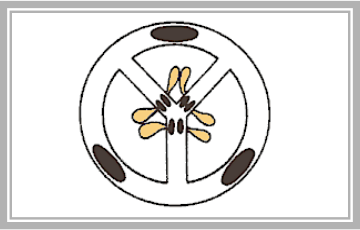
**1ST SPERM**

**OVULE**

**L.S.**



**OVULE**



**TUBE CELL**

**POLLEN TUBE**

**GENERATIVE CELL**

**SPERM CELL**

**ENDOSPERM**

**ZYGOTE**

**EMBRYO SAC**

**POLAR-NUCLEI**

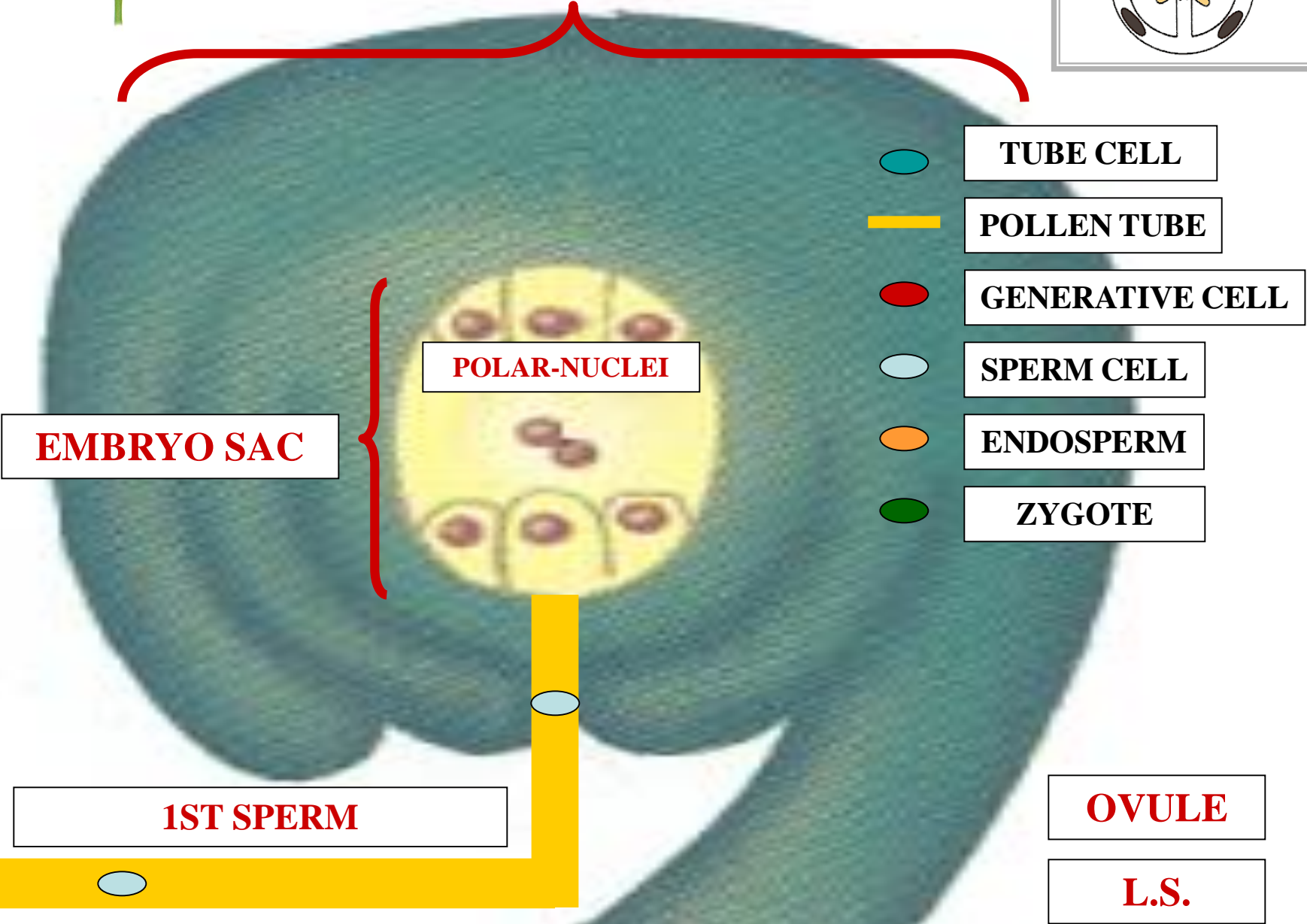
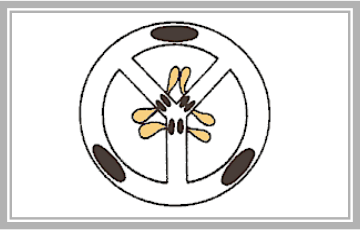
**1ST SPERM**

**OVULE**

**L.S.**



**OVULE**



**TUBE CELL**

**POLLEN TUBE**

**GENERATIVE CELL**

**SPERM CELL**

**ENDOSPERM**

**ZYGOTE**

**EMBRYO SAC**

**POLAR-NUCLEI**

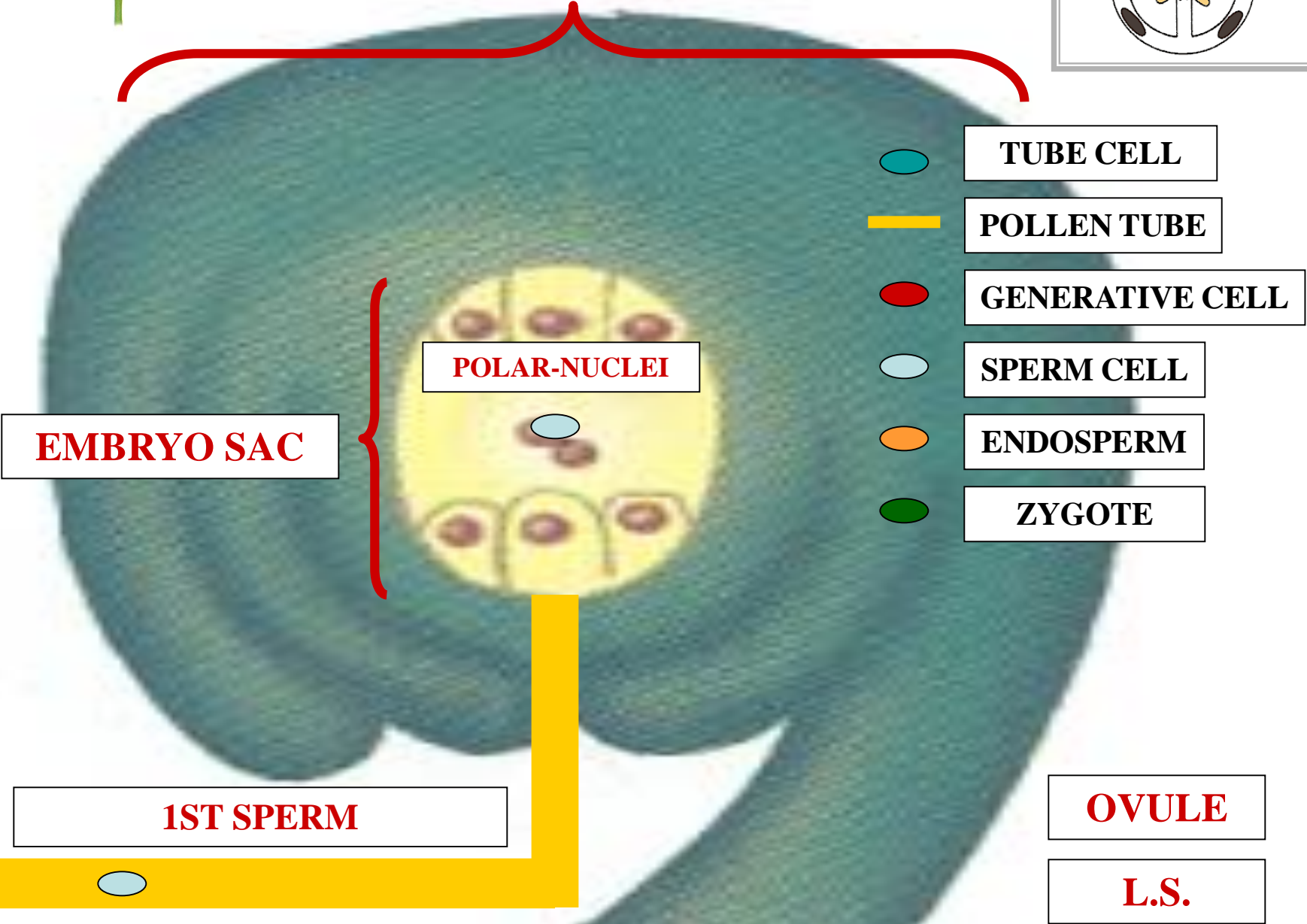
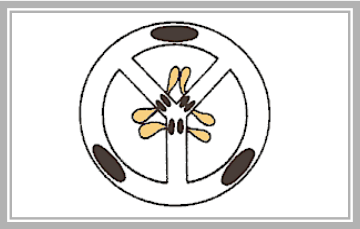
**1ST SPERM**

**OVULE**

**L.S.**



**OVULE**



**TUBE CELL**

**POLLEN TUBE**

**GENERATIVE CELL**

**SPERM CELL**

**ENDOSPERM**

**ZYGOTE**

**EMBRYO SAC**

**POLAR-NUCLEI**

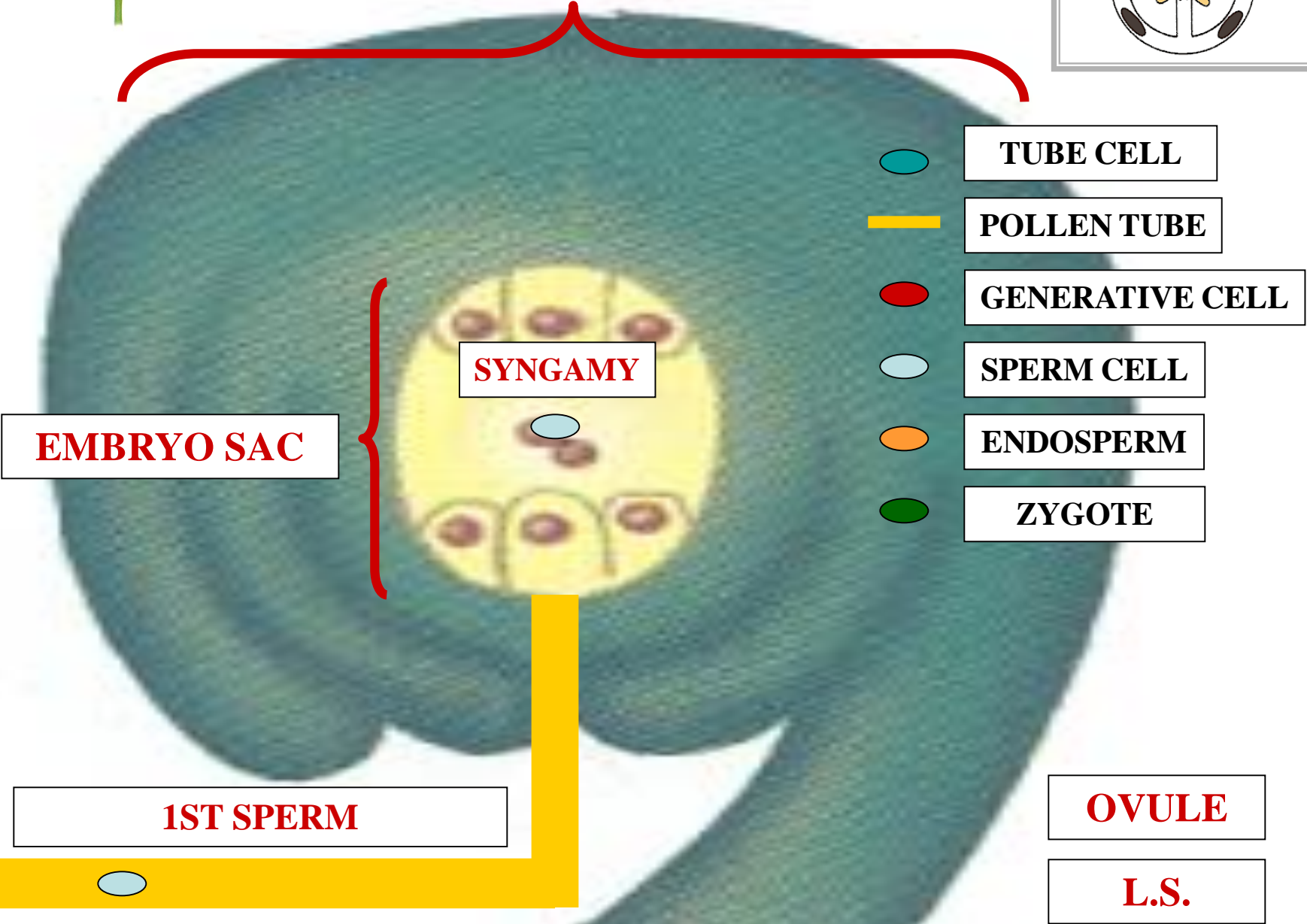
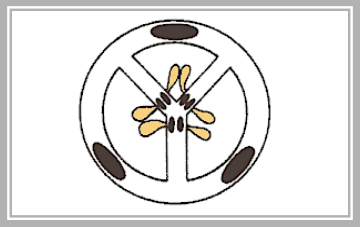
**1ST SPERM**

**OVULE**

**L.S.**



**OVULE**



**TUBE CELL**

**POLLEN TUBE**

**GENERATIVE CELL**

**SPERM CELL**

**ENDOSPERM**

**ZYGOTE**

**EMBRYO SAC**

**SYNGAMY**

**1ST SPERM**

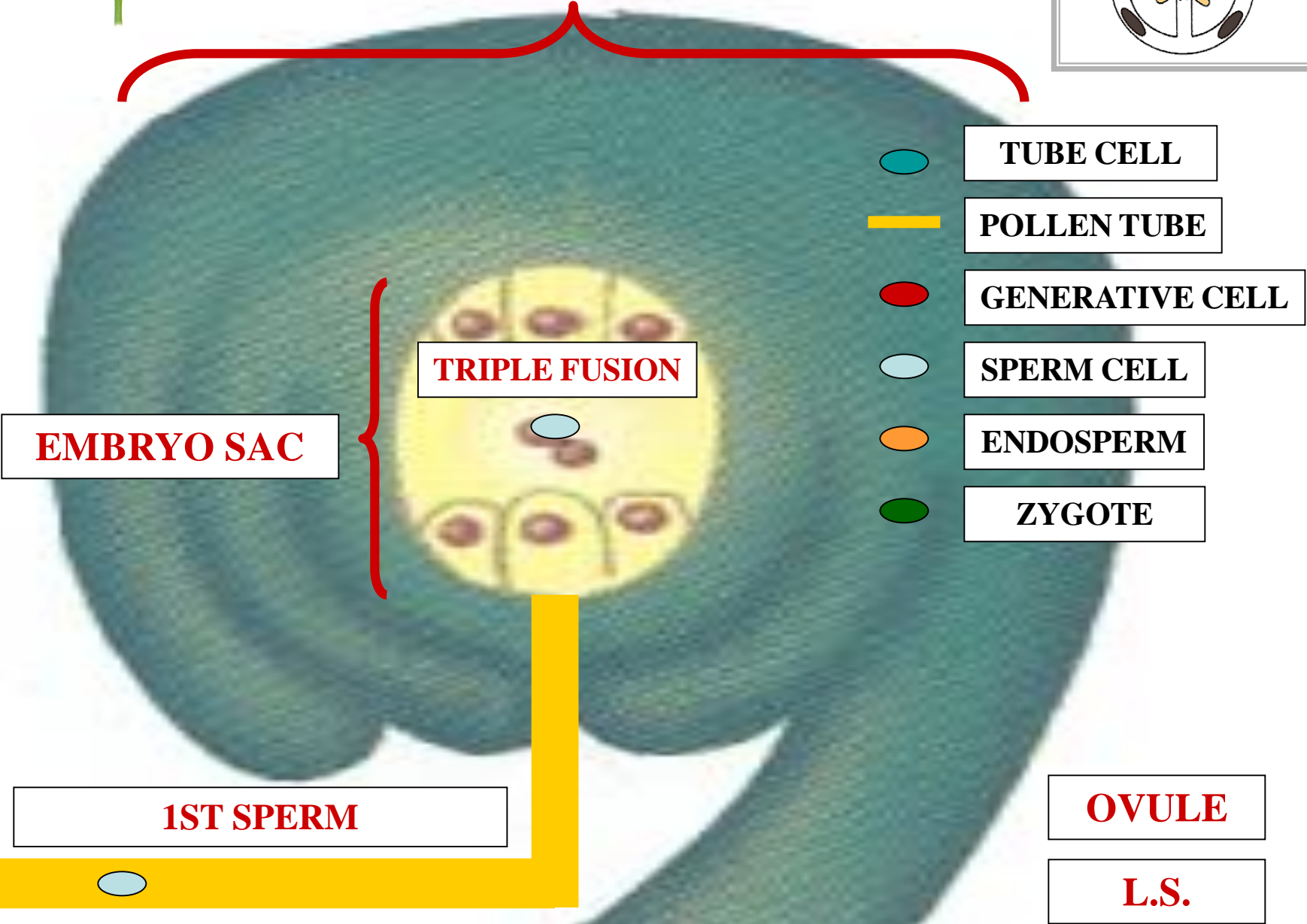
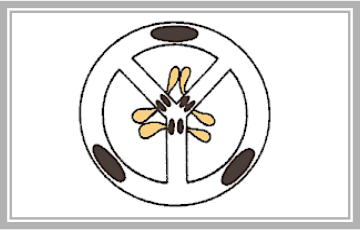
**OVULE**

**L.S.**





**OVULE**



**TUBE CELL**

**POLLEN TUBE**

**GENERATIVE CELL**

**SPERM CELL**

**ENDOSPERM**

**ZYGOTE**

**EMBRYO SAC**

**TRIPLE FUSION**

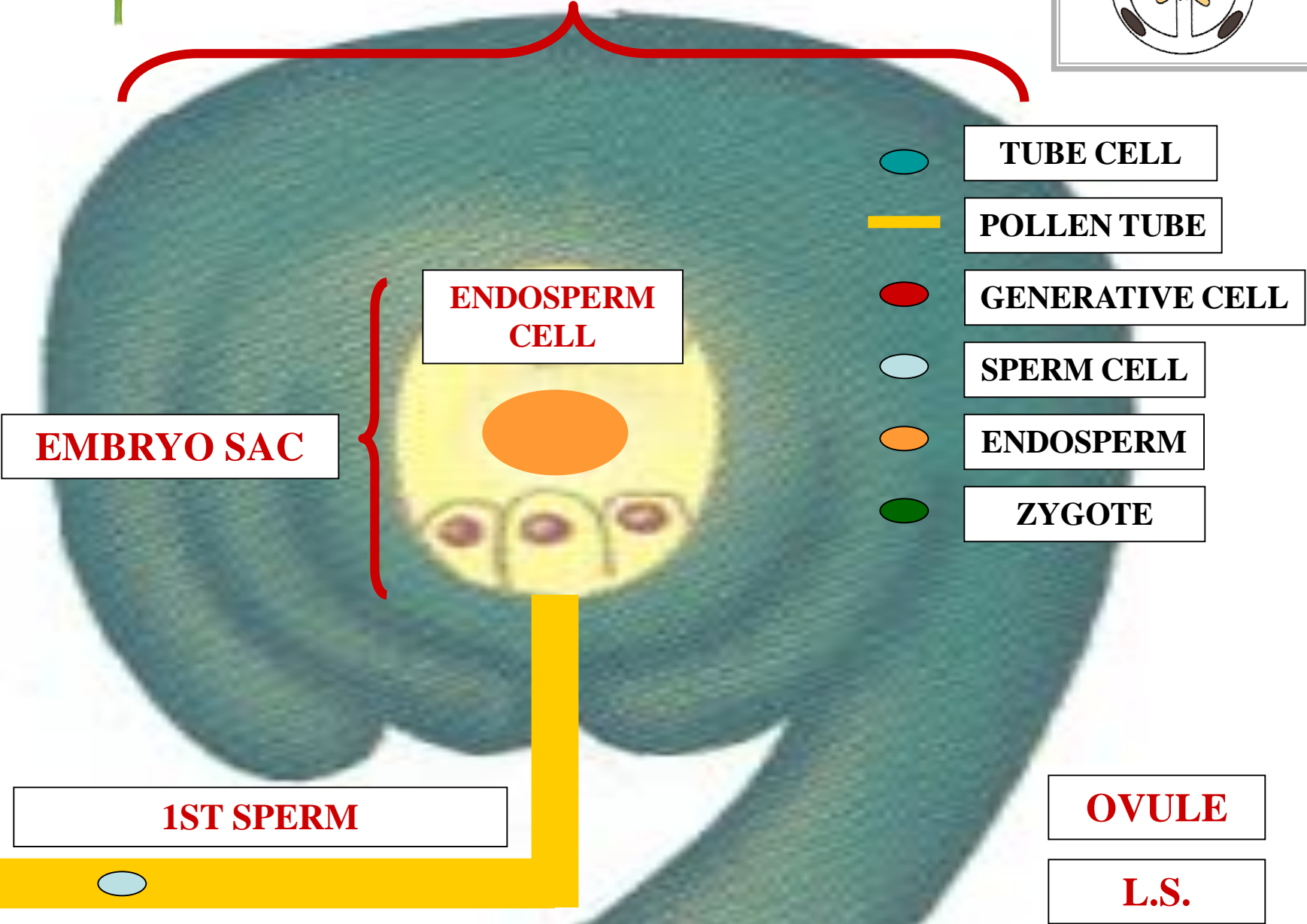
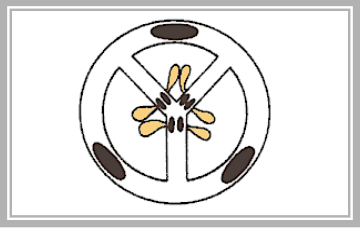
**1ST SPERM**

**OVULE**

**L.S.**



**OVULE**



**TUBE CELL**

**POLLEN TUBE**

**GENERATIVE CELL**

**SPERM CELL**

**ENDOSPERM**

**ZYGOTE**

**EMBRYO SAC**

**ENDOSPERM CELL**

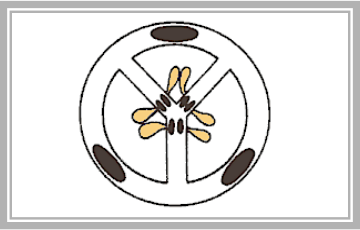
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**OVULE**

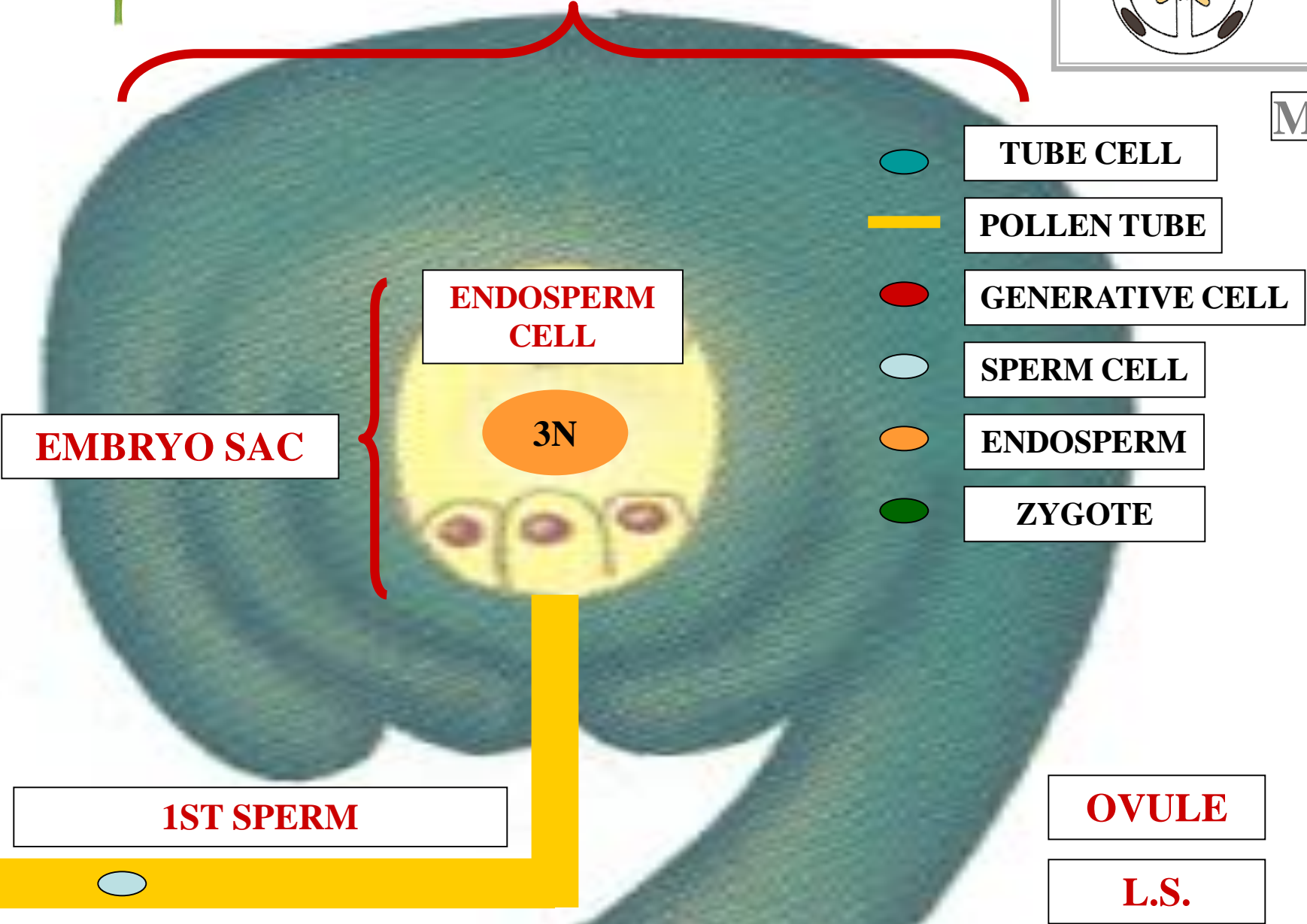
**L.S.**



**OVULE**



**M**



**TUBE CELL**

**POLLEN TUBE**

**GENERATIVE CELL**

**SPERM CELL**

**ENDOSPERM**

**ZYGOTE**

**ENDOSPERM CELL**

**3N**

**EMBRYO SAC**

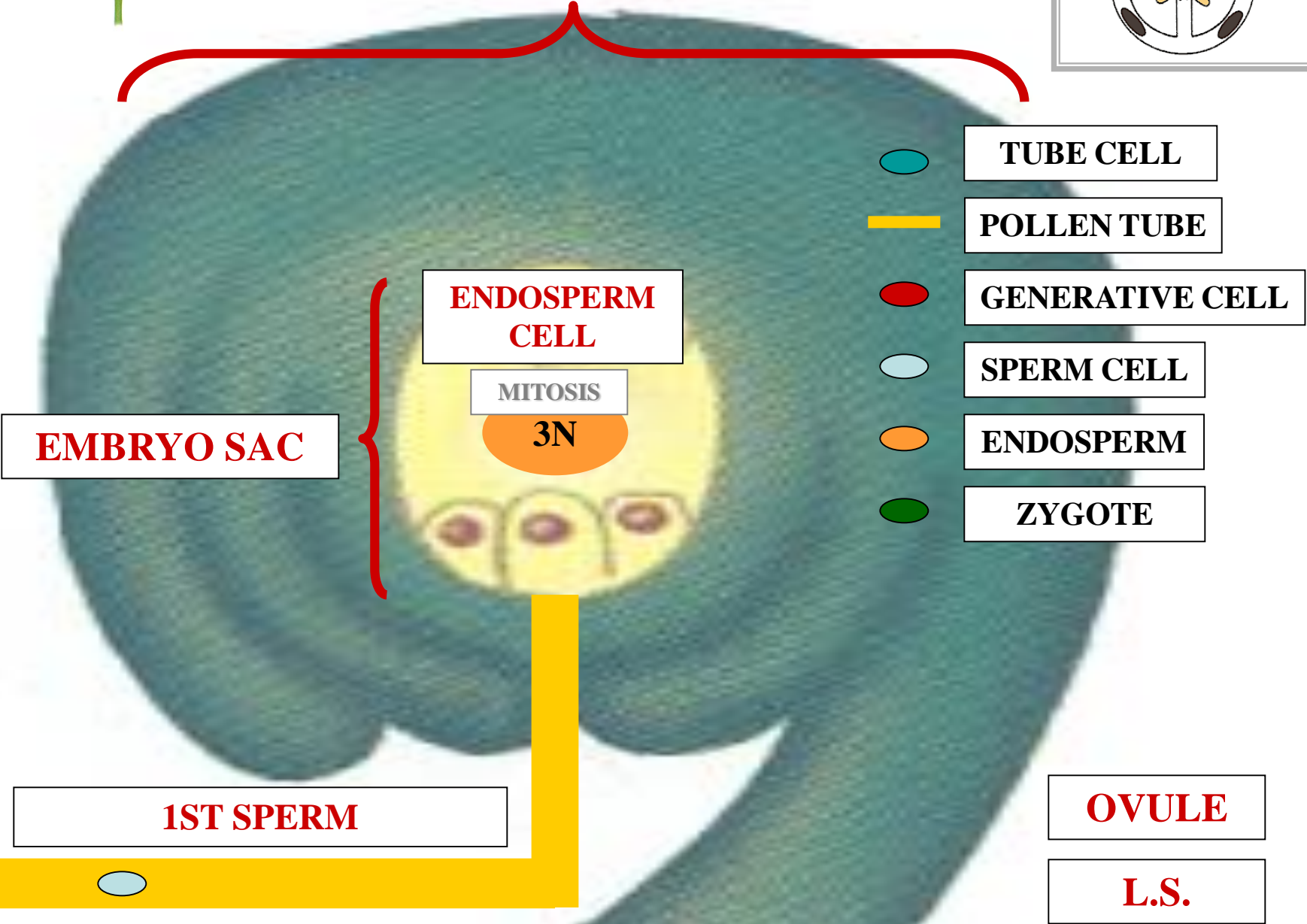
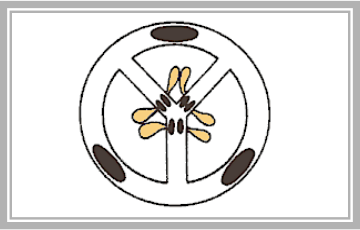
**1ST SPERM**

**OVULE**

**L.S.**



**OVULE**



**TUBE CELL**

**POLLEN TUBE**

**GENERATIVE CELL**

**SPERM CELL**

**ENDOSPERM**

**ZYGOTE**

**EMBRYO SAC**

**ENDOSPERM CELL**

**MITOSIS**

**3N**

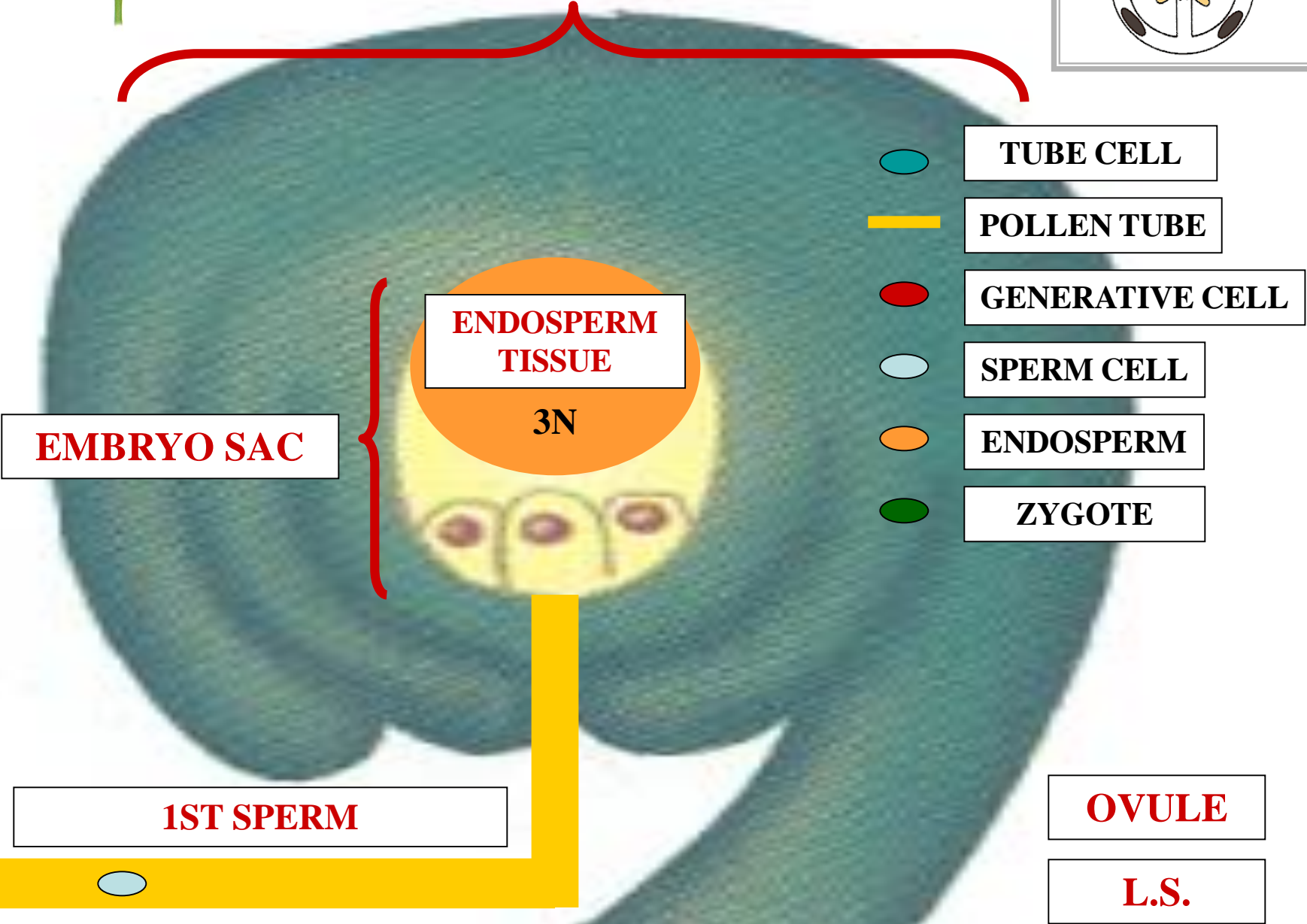
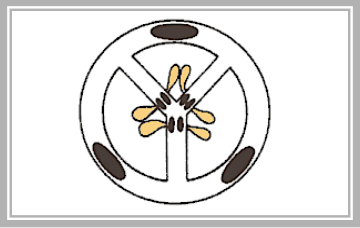
**1ST SPERM**

**OVULE**

**L.S.**



**OVULE**



**TUBE CELL**

**POLLEN TUBE**

**GENERATIVE CELL**

**SPERM CELL**

**ENDOSPERM**

**ZYGOTE**

**EMBRYO SAC**

**ENDOSPERM TISSUE**

**3N**

**1ST SPERM**

**OVULE**

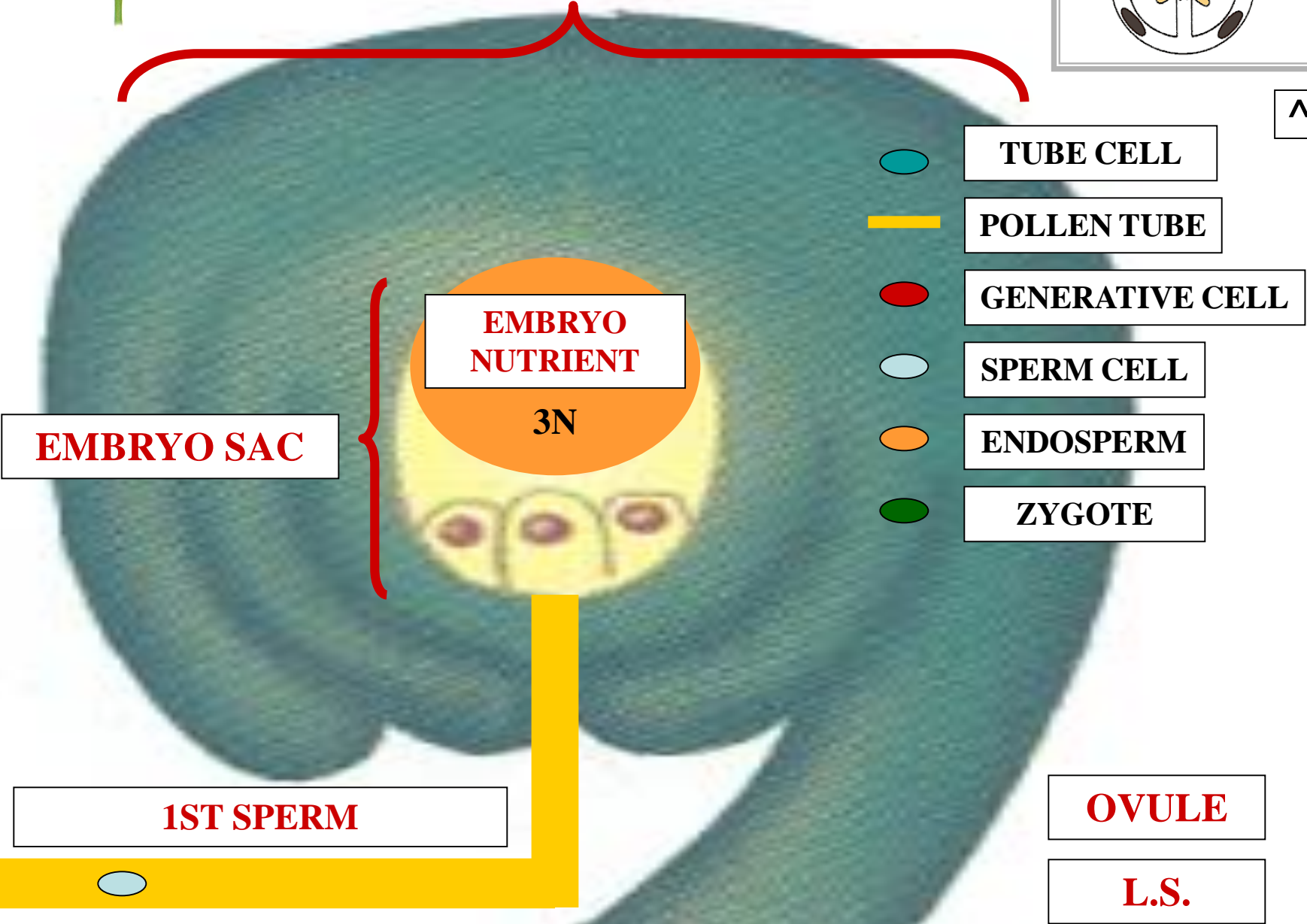
**L.S.**



**OVULE**



^



**TUBE CELL**

**POLLEN TUBE**

**GENERATIVE CELL**

**SPERM CELL**

**ENDOSPERM**

**ZYGOTE**

**EMBRYO NUTRIENT**

**3N**

**EMBRYO SAC**

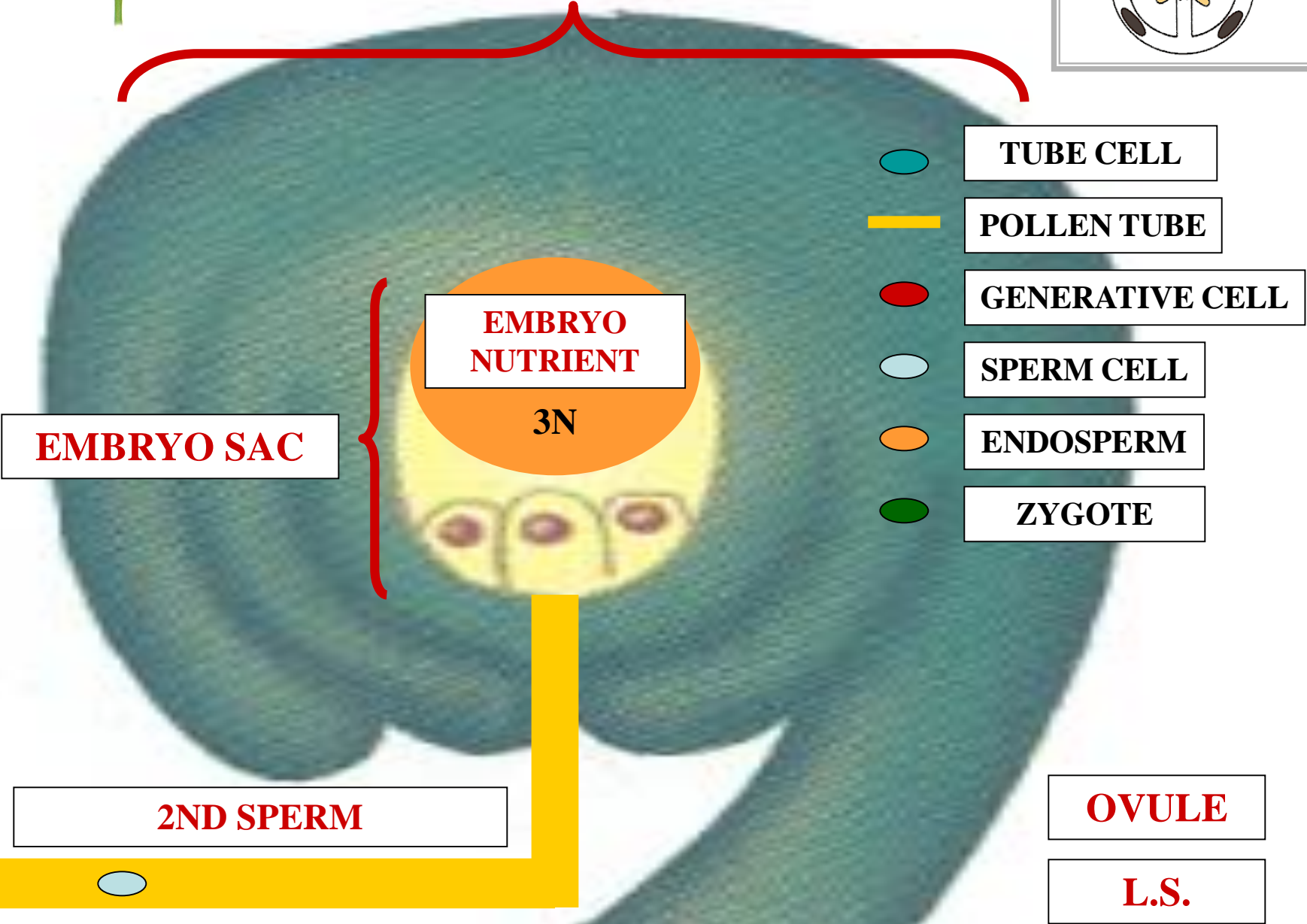
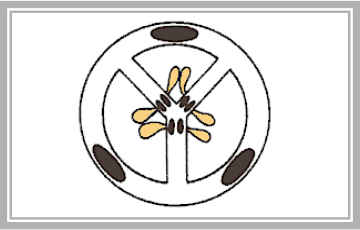
**1ST SPERM**

**OVULE**

**L.S.**



**OVULE**



**TUBE CELL**

**POLLEN TUBE**

**GENERATIVE CELL**

**SPERM CELL**

**ENDOSPERM**

**ZYGOTE**

**EMBRYO SAC**

**EMBRYO NUTRIENT**

**3N**

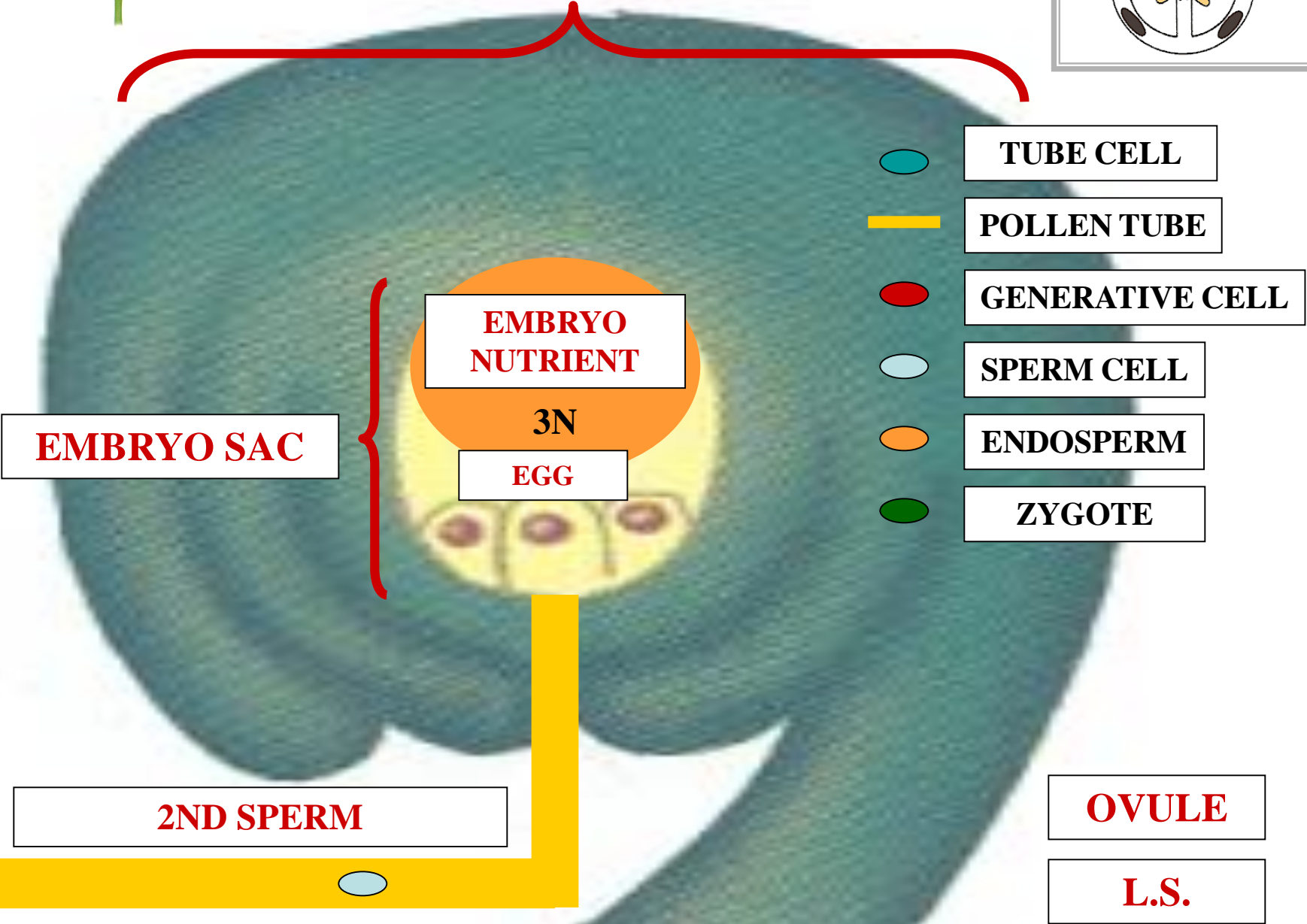
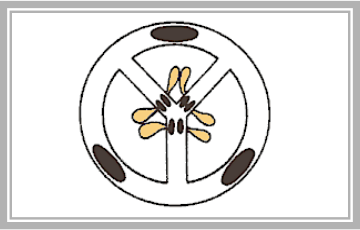
**2ND SPERM**

**OVULE**

**L.S.**



**OVULE**



**TUBE CELL**

**POLLEN TUBE**

**GENERATIVE CELL**

**SPERM CELL**

**ENDOSPERM**

**ZYGOTE**

**EMBRYO SAC**

**EMBRYO NUTRIENT**

**3N**

**EGG**

**2ND SPERM**

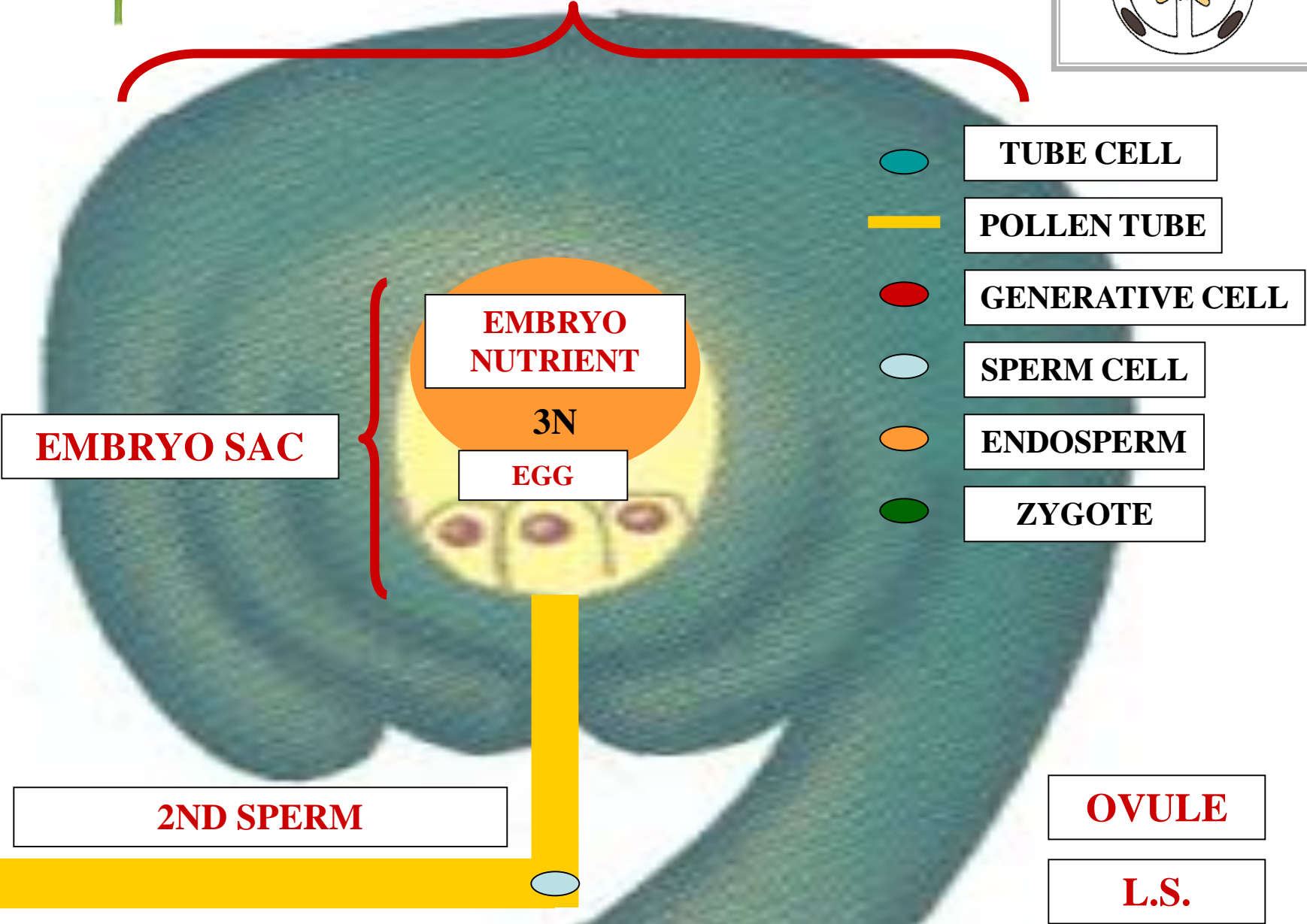
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**L.S.**





**OVULE**



**TUBE CELL**

**POLLEN TUBE**

**GENERATIVE CELL**

**SPERM CELL**

**ENDOSPERM**

**ZYGOTE**

**EMBRYO NUTRIENT**

**3N**

**EGG**

**EMBRYO SAC**

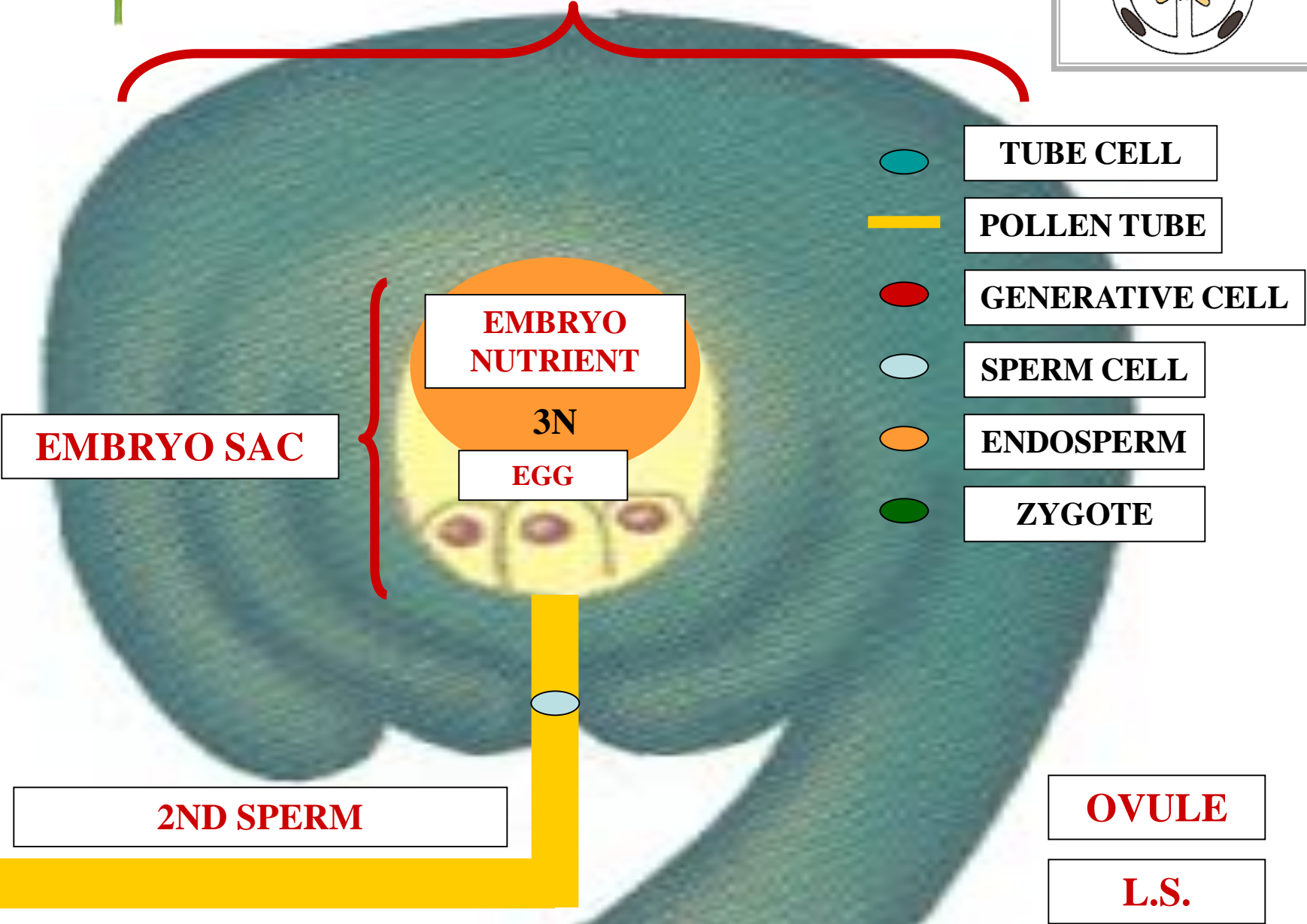
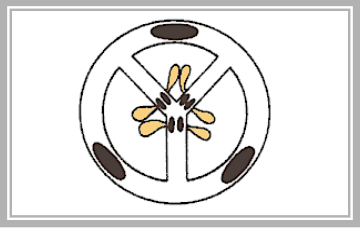
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**L.S.**

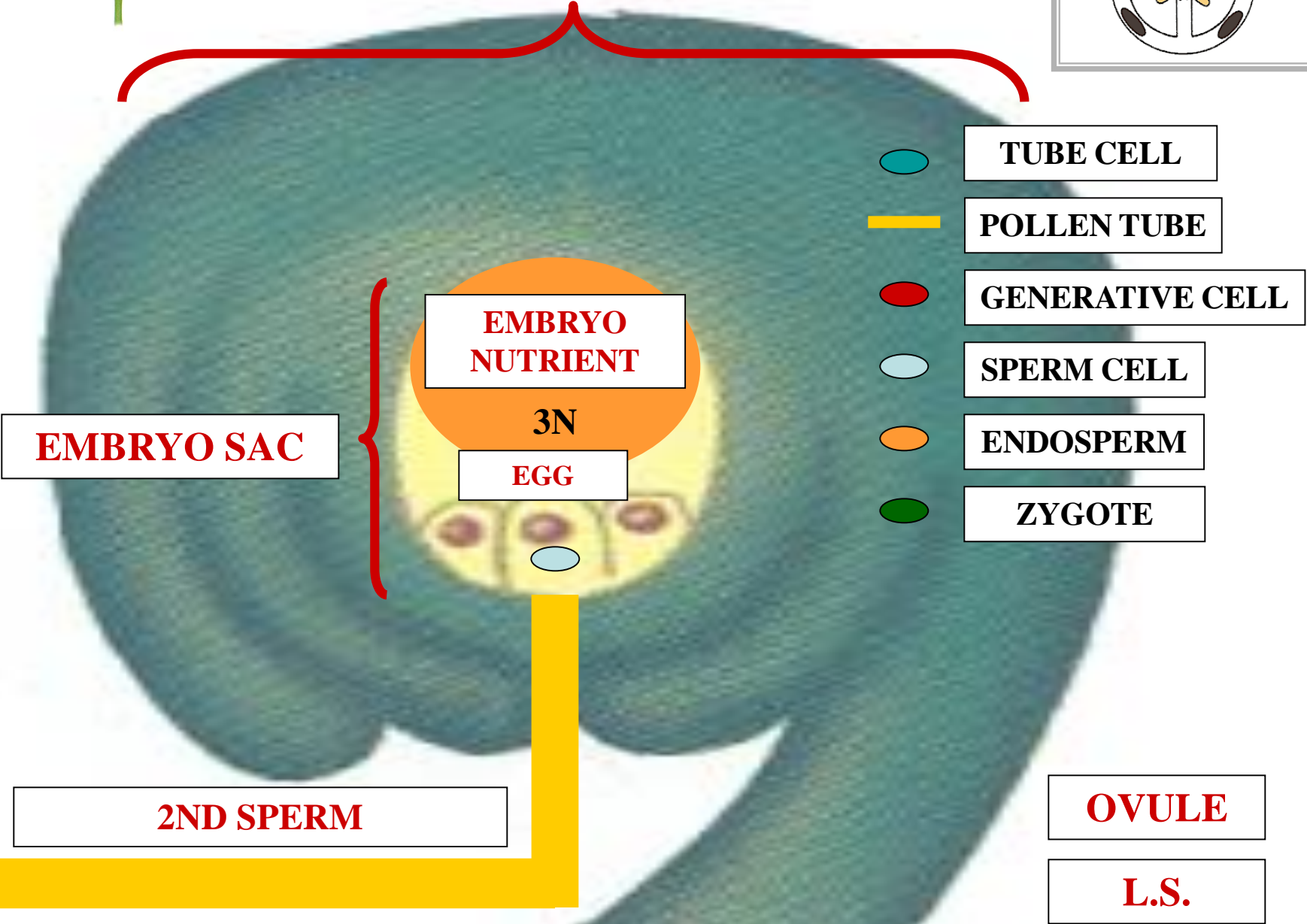


**OVULE**





**OVULE**



**TUBE CELL**

**POLLEN TUBE**

**GENERATIVE CELL**

**SPERM CELL**

**ENDOSPERM**

**ZYGOTE**

**EMBRYO SAC**

**EMBRYO NUTRIENT**

**EGG**

**3N**

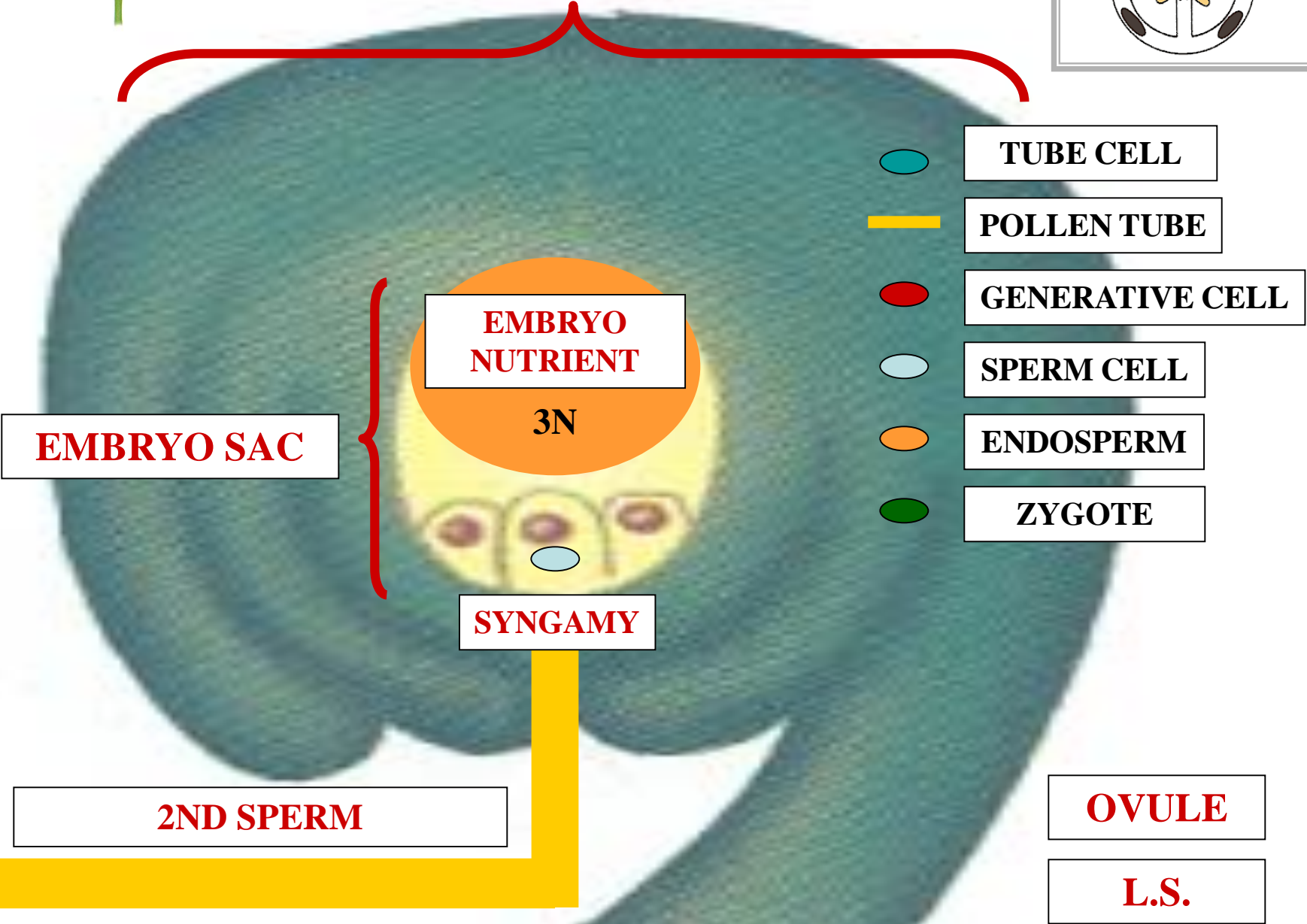
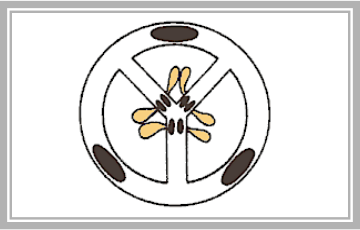
**2ND SPERM**

**OVULE**

**L.S.**



**OVULE**



**TUBE CELL**

**POLLEN TUBE**

**GENERATIVE CELL**

**SPERM CELL**

**ENDOSPERM**

**ZYGOTE**

**EMBRYO SAC**

**EMBRYO NUTRIENT**

**3N**

**SYNGAMY**

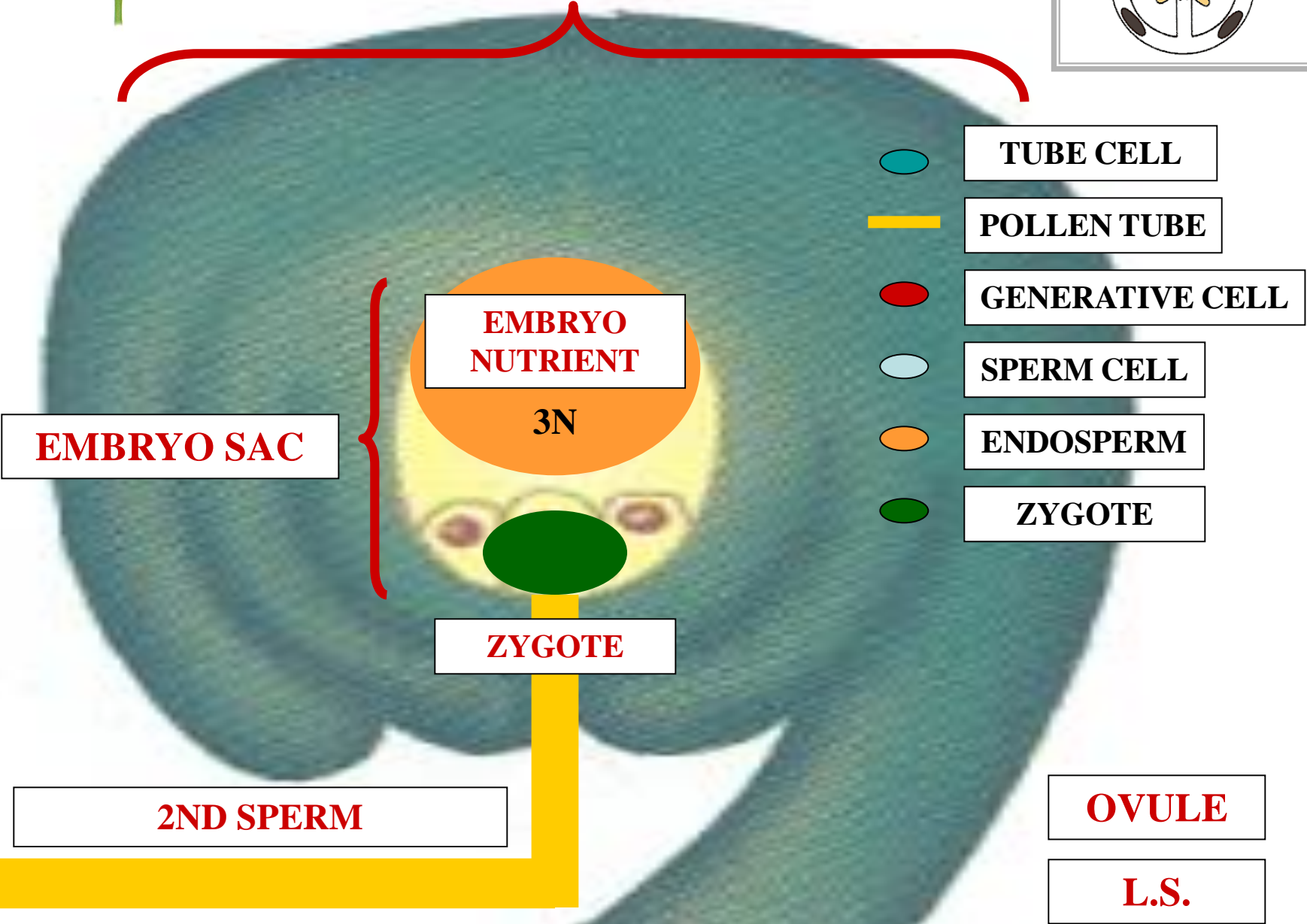
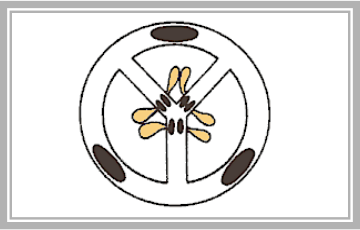
**2ND SPERM**

**OVULE**

**L.S.**



**OVULE**



**TUBE CELL**

**POLLEN TUBE**

**GENERATIVE CELL**

**SPERM CELL**

**ENDOSPERM**

**ZYGOTE**

**EMBRYO SAC**

**EMBRYO NUTRIENT**

**3N**

**ZYGOTE**

**2ND SPERM**

**OVULE**

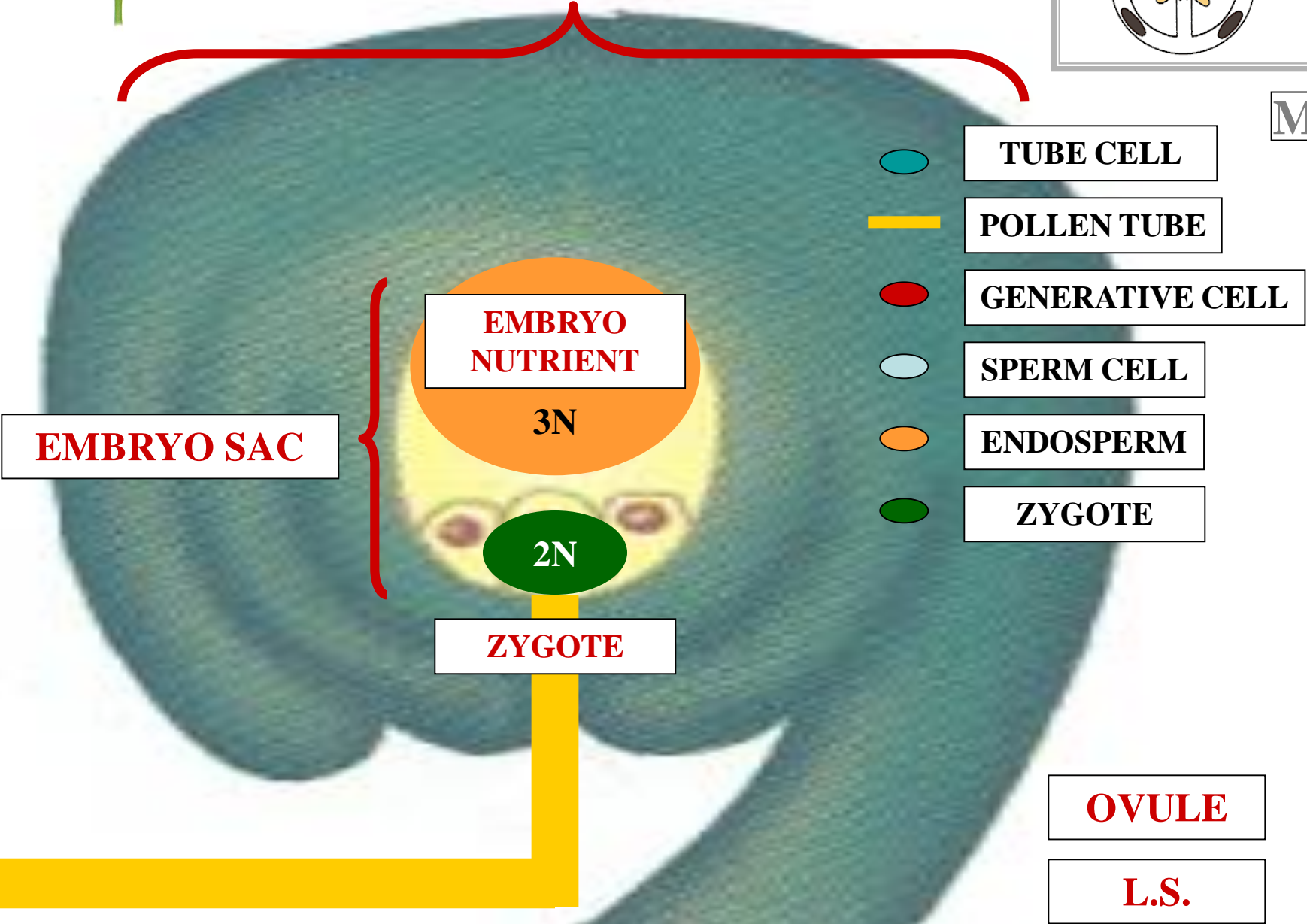
**L.S.**



**OVULE**



**M**



**TUBE CELL**

**POLLEN TUBE**

**GENERATIVE CELL**

**SPERM CELL**

**ENDOSPERM**

**ZYGOTE**

**EMBRYO SAC**

**EMBRYO NUTRIENT**

**3N**

**2N**

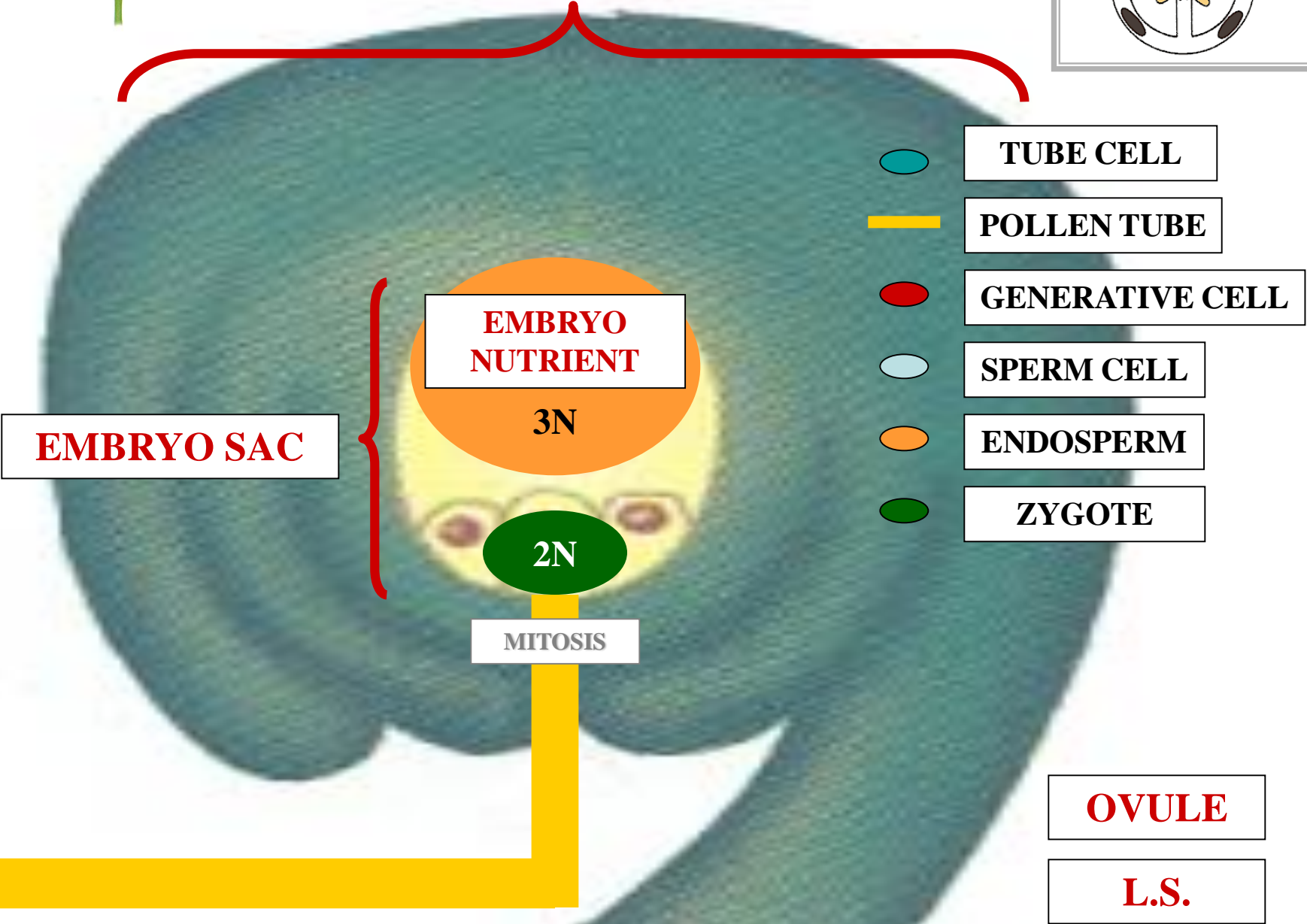
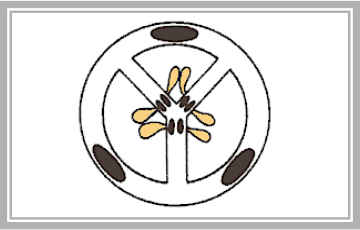
**ZYGOTE**

**OVULE**

**L.S.**



**OVULE**



**TUBE CELL**

**POLLEN TUBE**

**GENERATIVE CELL**

**SPERM CELL**

**ENDOSPERM**

**ZYGOTE**

**EMBRYO SAC**

**EMBRYO NUTRIENT**

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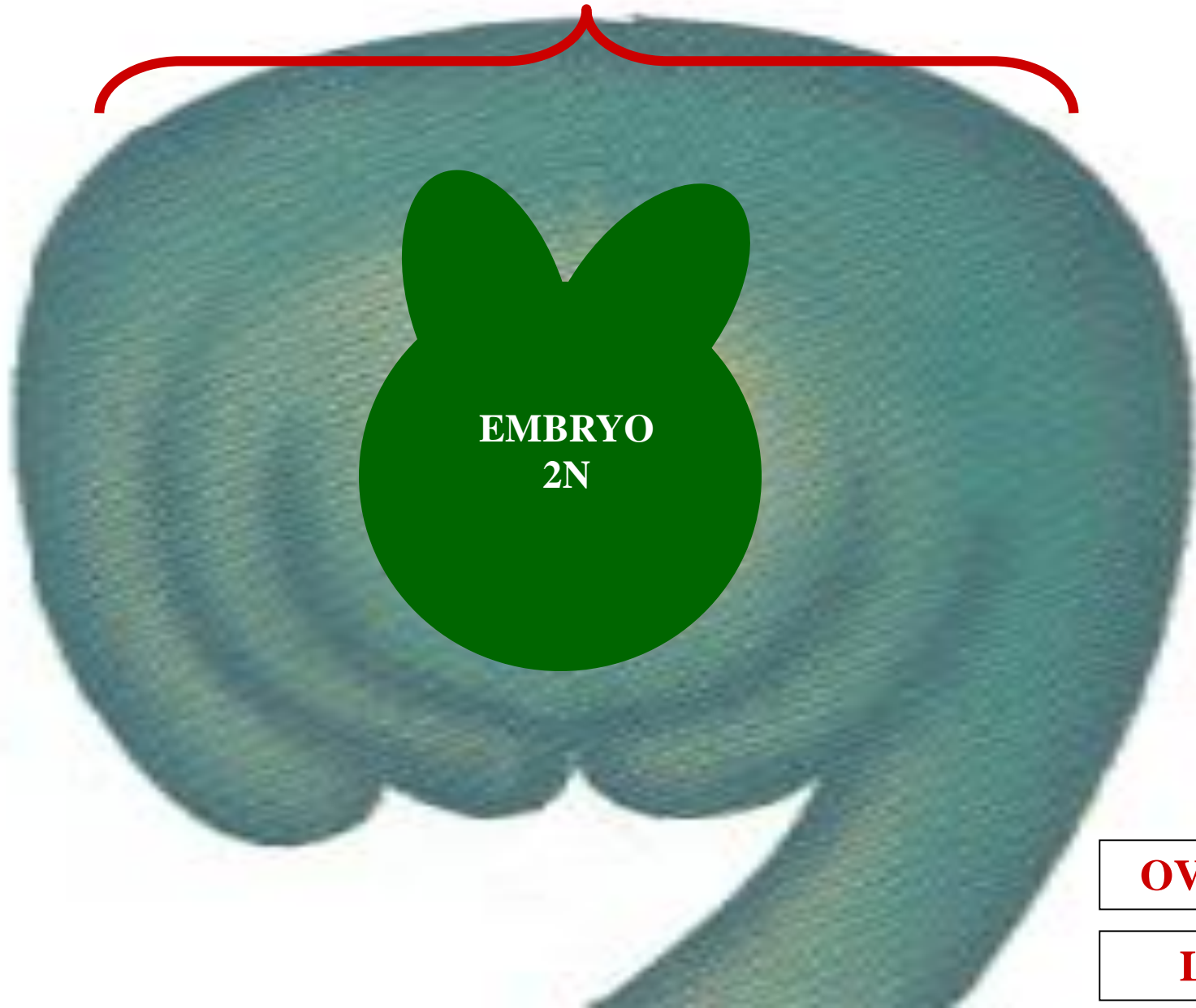
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**MITOSIS**

**OVULE**

**L.S.**

**OVULE**



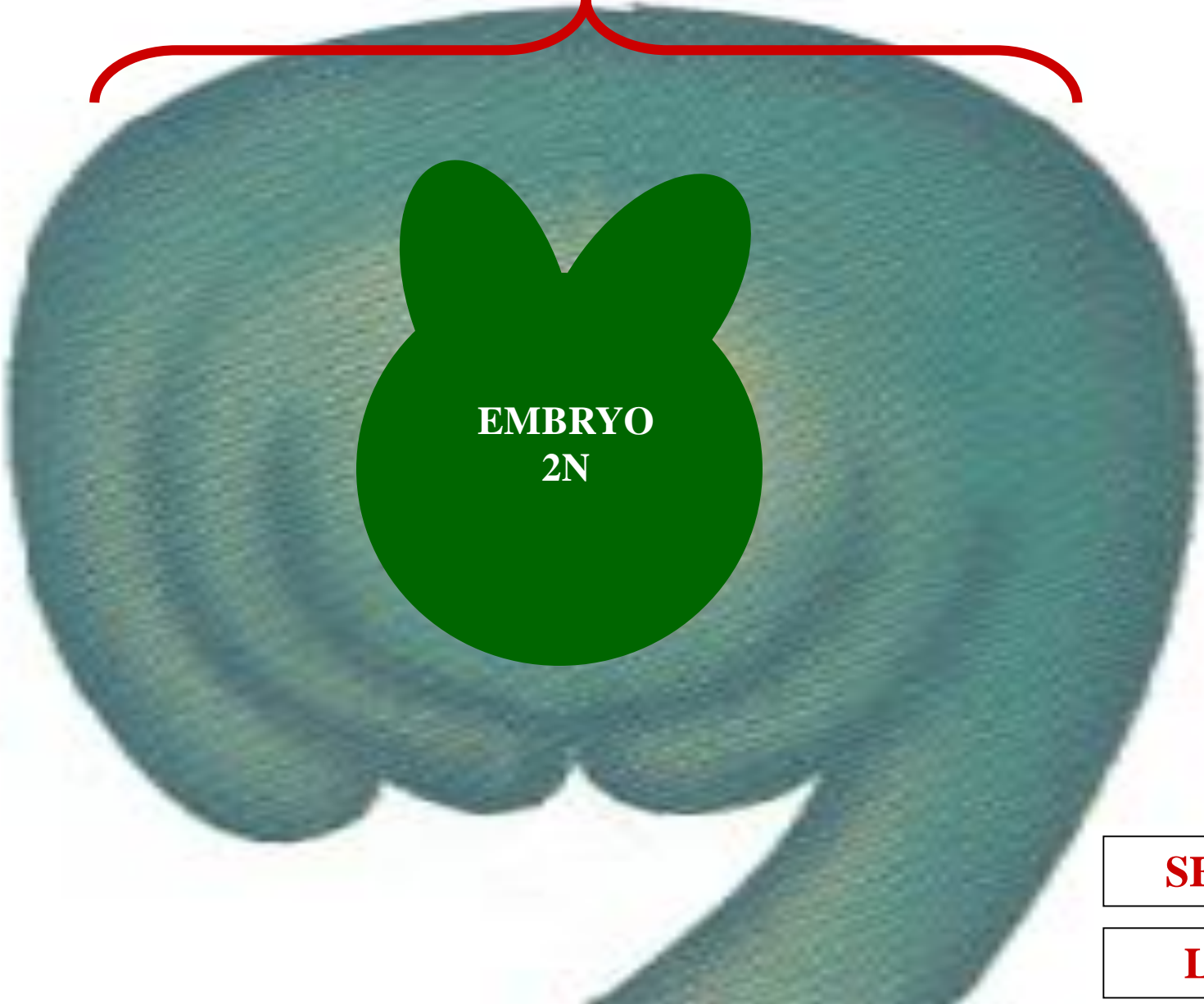
**EMBRYO**  
**2N**

**OVULE**

**L.S.**



**SEED**



**EMBRYO  
2N**

**SEED**

**L.S.**



**SEED**



**EMBRYO**  
**2N**

**MITOSIS**

**SEED**

**L.S.**

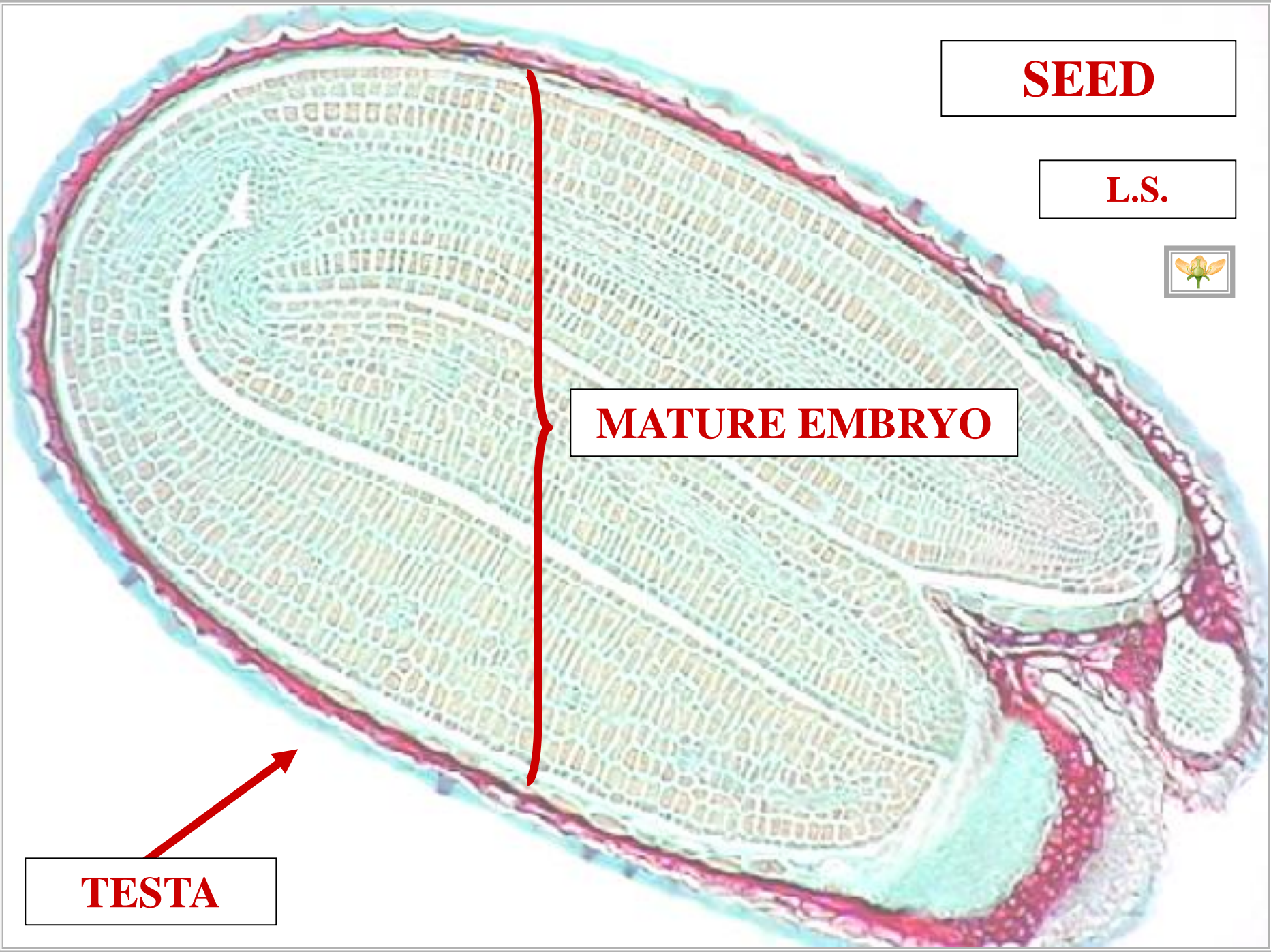
**SEED**

**L.S.**



**MATURE EMBRYO**

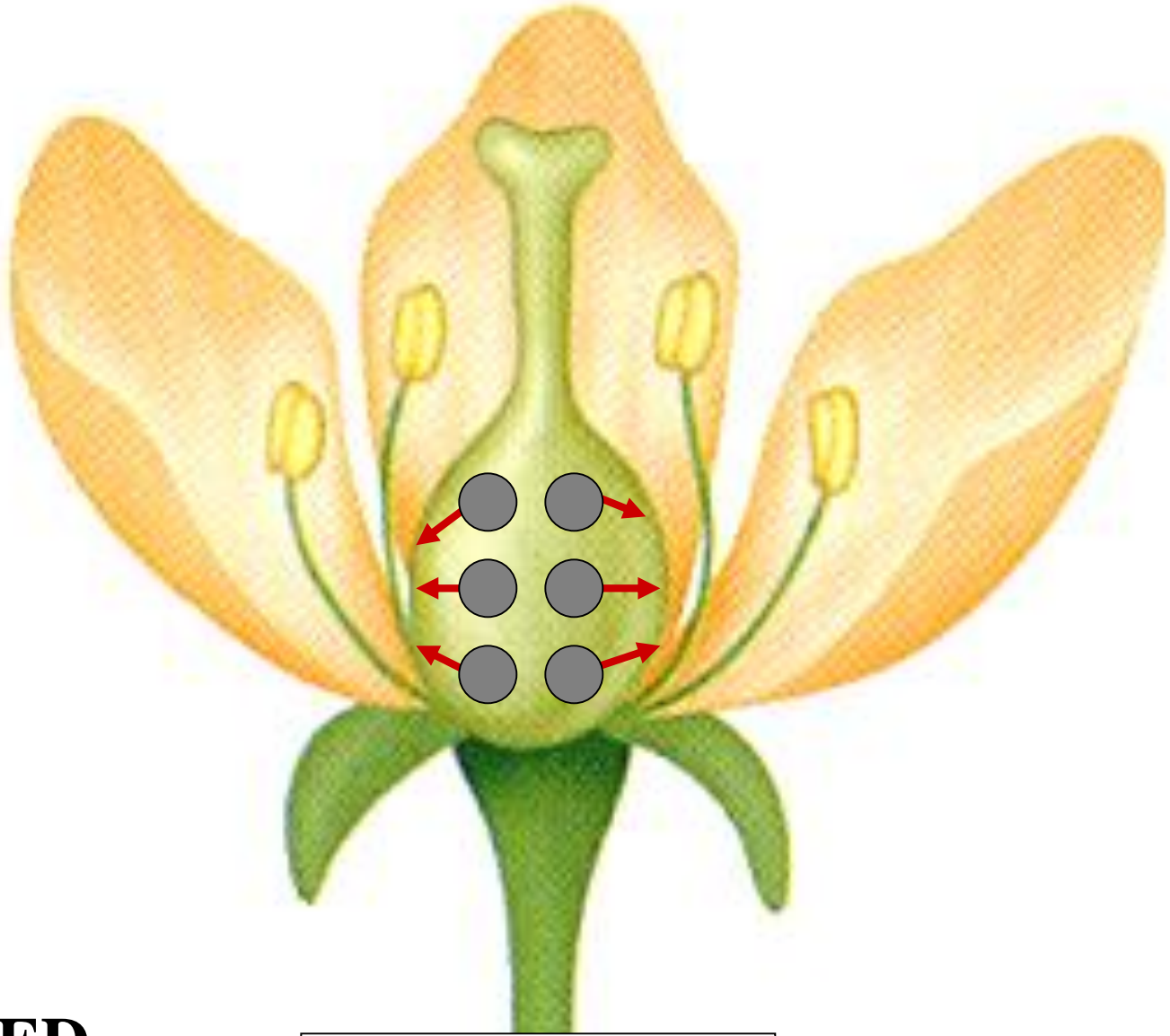
**TESTA**





● = SEED

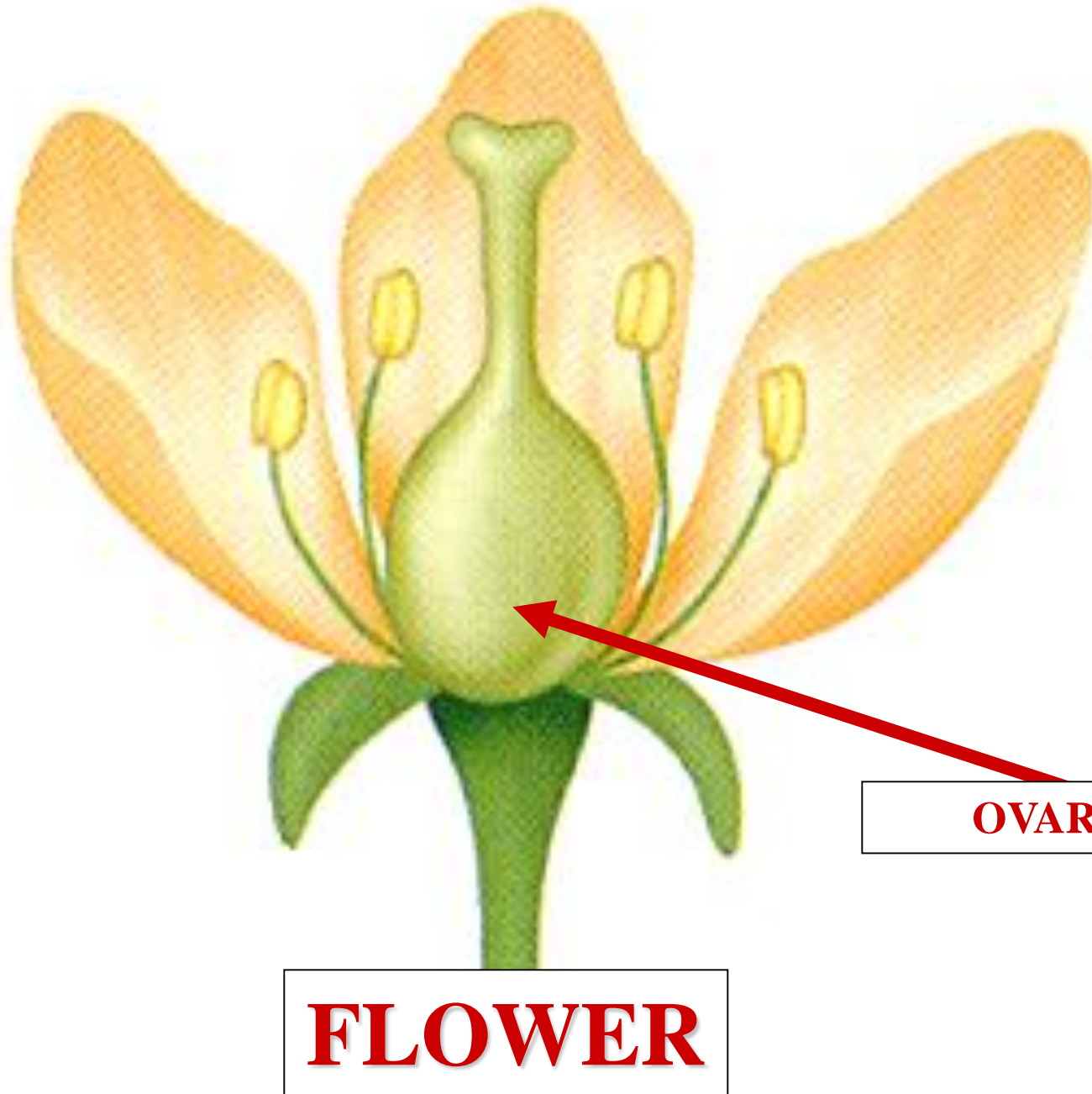
**FLOWER**



● = SEED

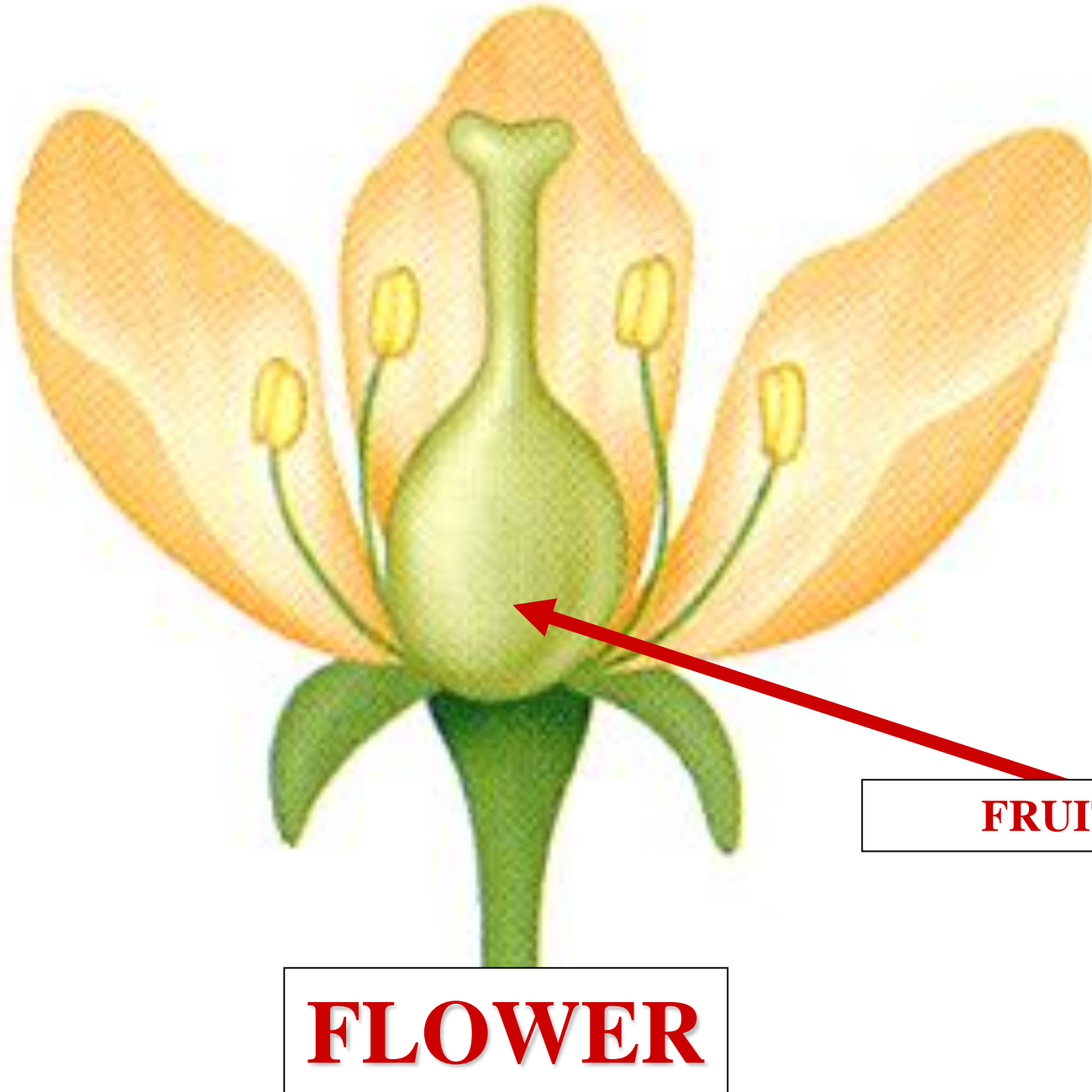
→ = HORMONE

**FLOWER**



**FLOWER**

**OVARY**



**FRUIT**

**FLOWER**



**D**



**FRUIT**





**FRUIT**

**DISSEMINATED**

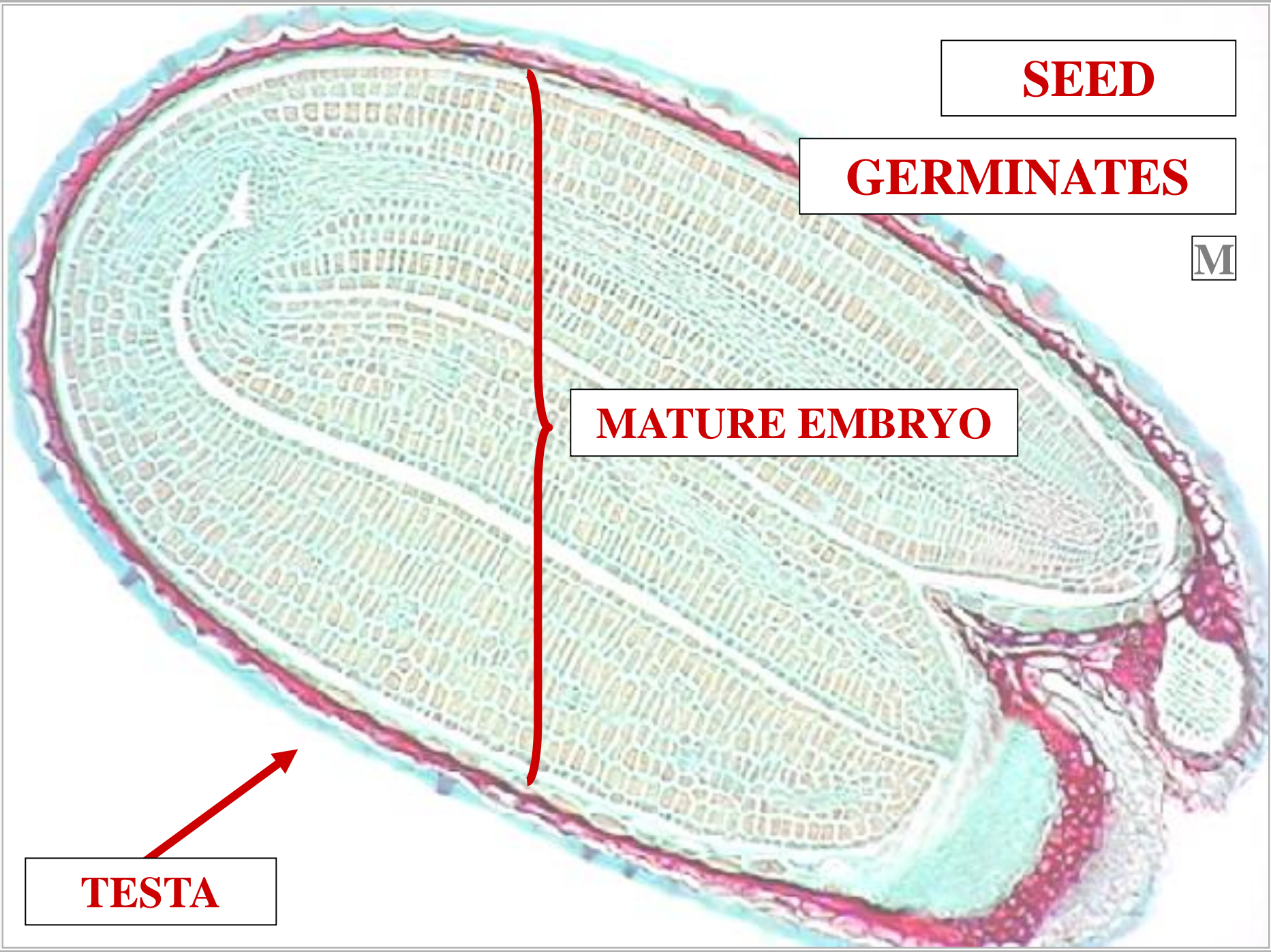
**SEED**

**GERMINATES**

**M**

**MATURE EMBRYO**

**TESTA**



**SEED**

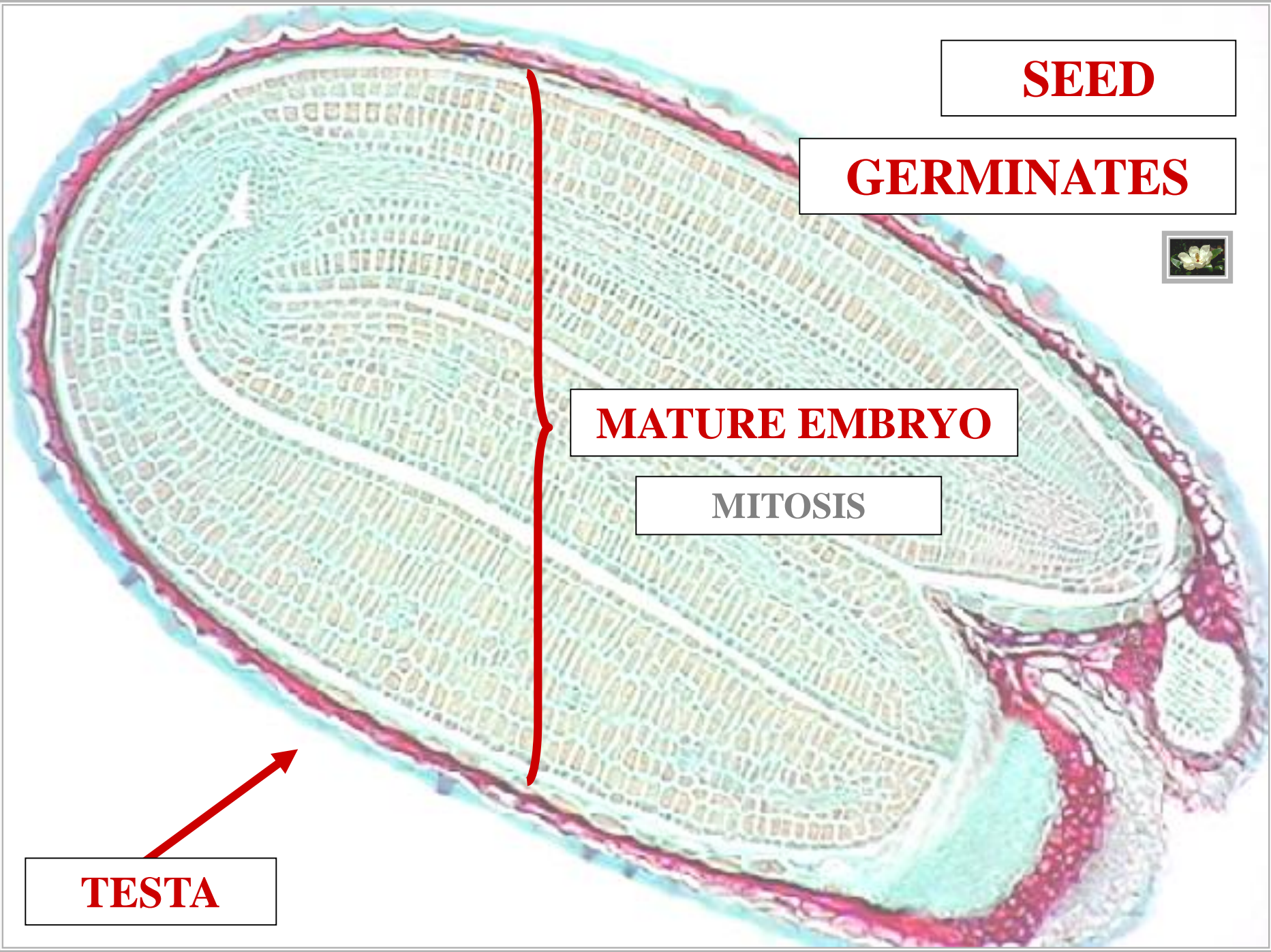
**GERMINATES**



**MATURE EMBRYO**

**MITOSIS**

**TESTA**





**MATURE  
ANGIOSPERM  
SPOROPHYTE**

# ANGIOSPERM FRUIT



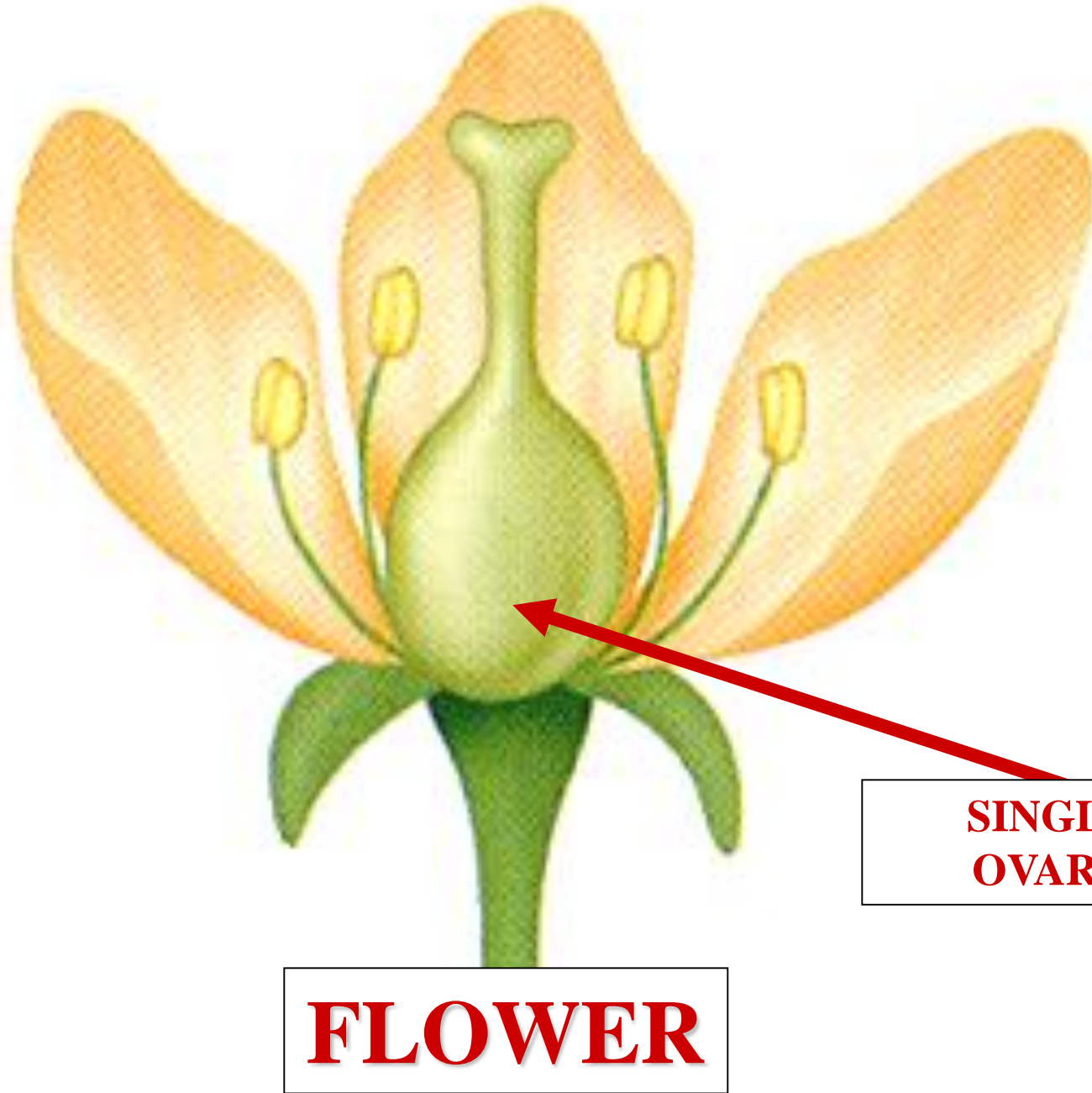
# FRUIT

# GENERAL FRUIT TYPES



# **SIMPLE FRUIT**





**SINGLE  
OVARY**

**FLOWER**

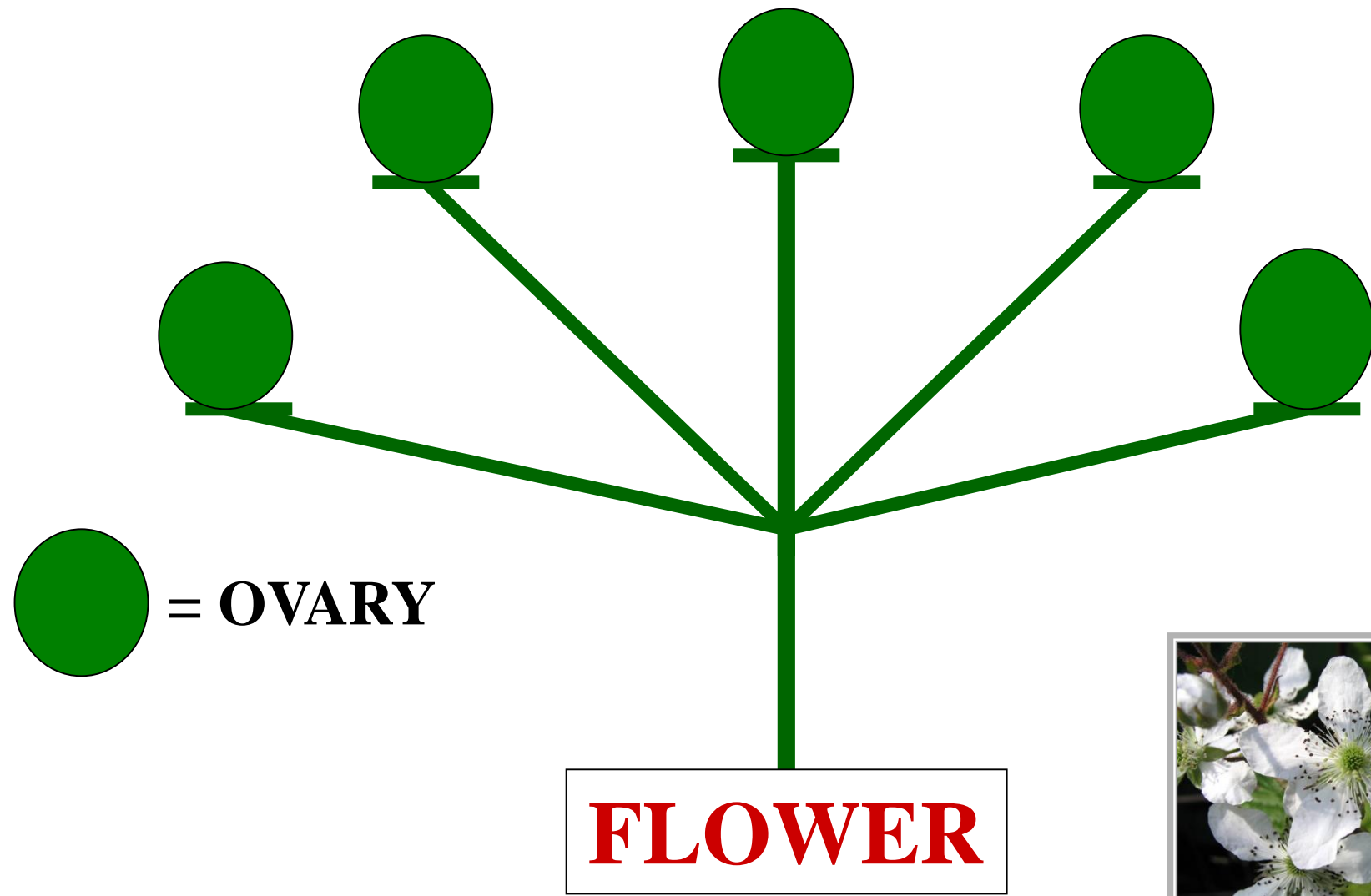
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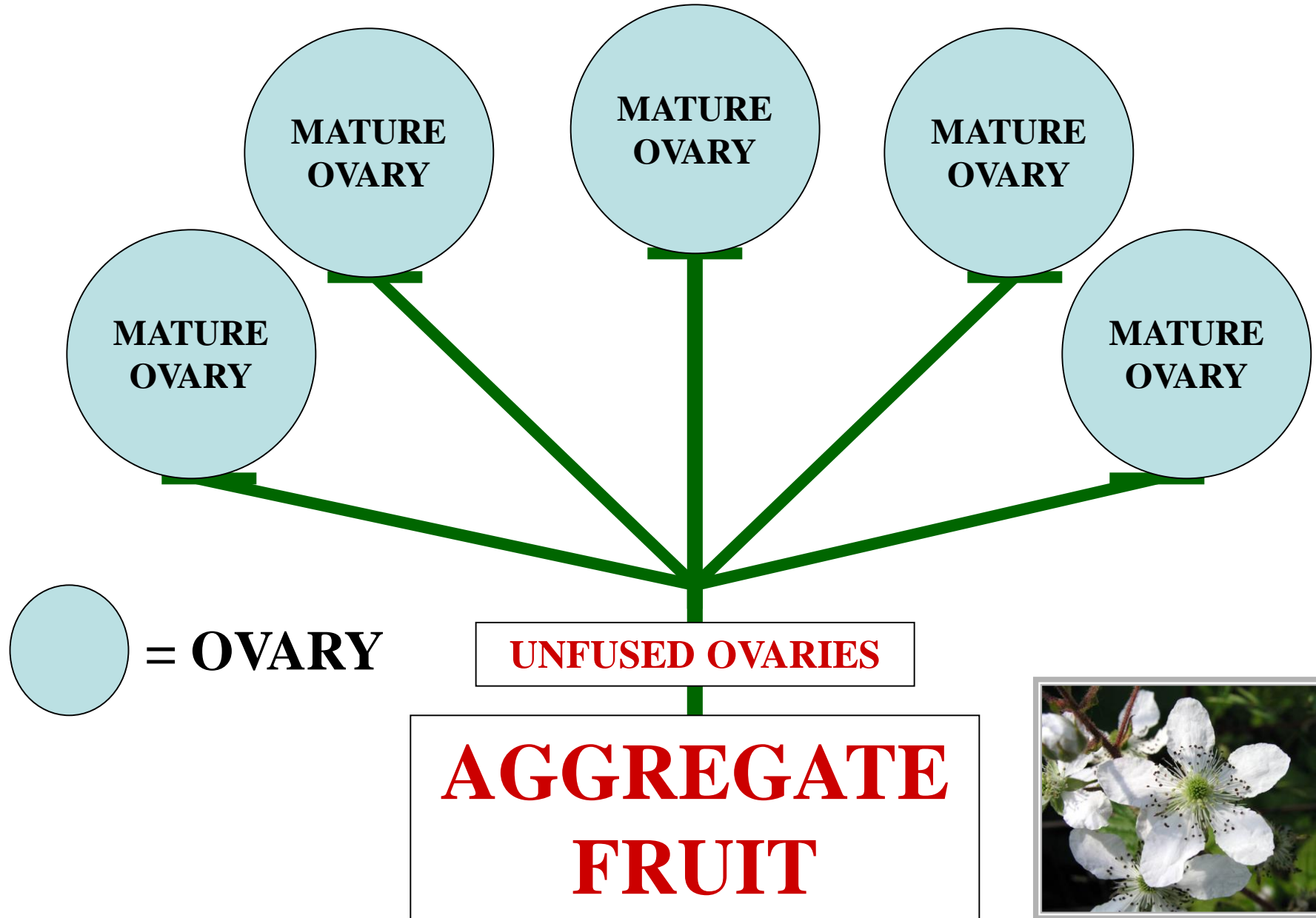




# AGGREGATE FRUIT







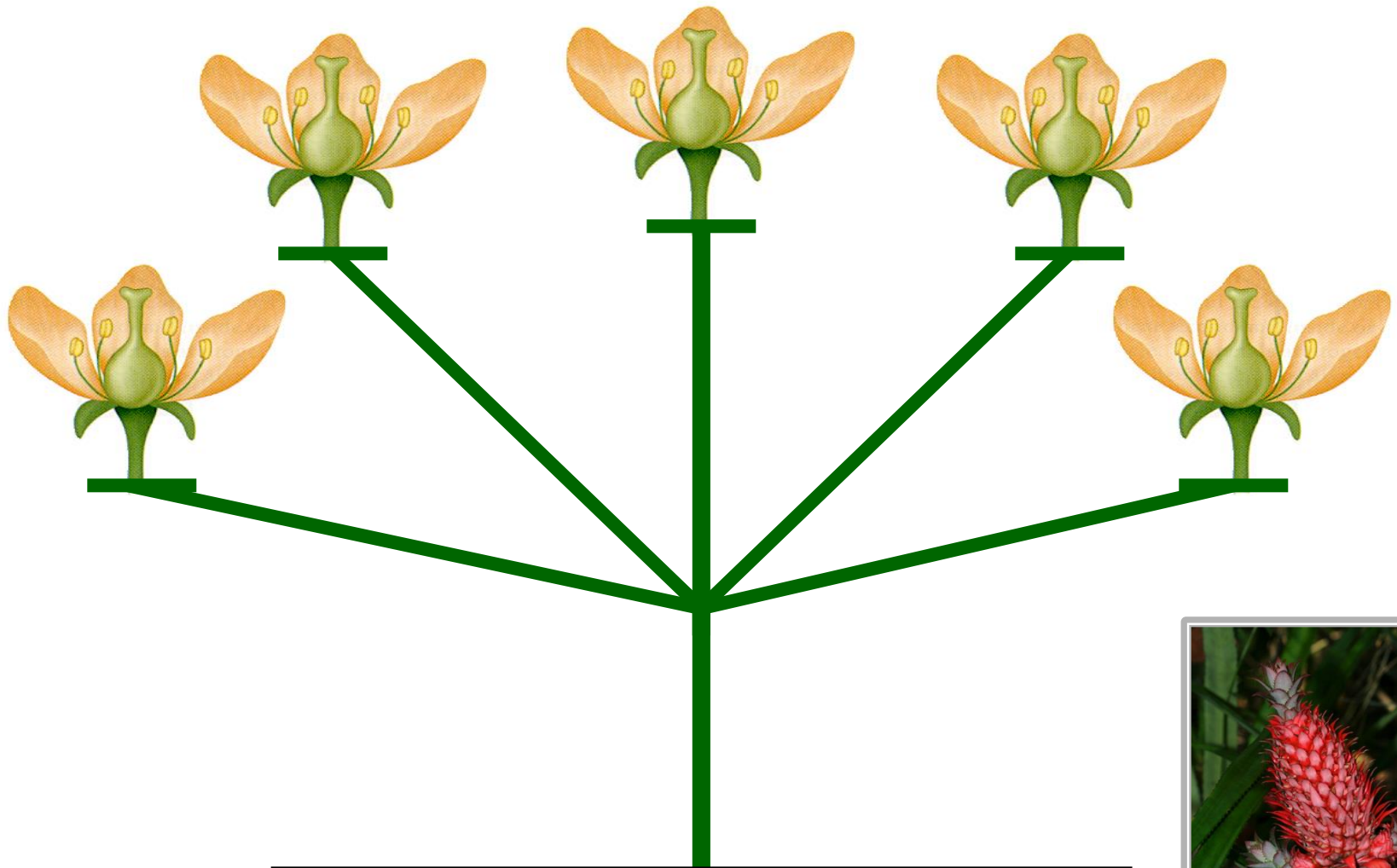




# MULTIPLE FRUIT

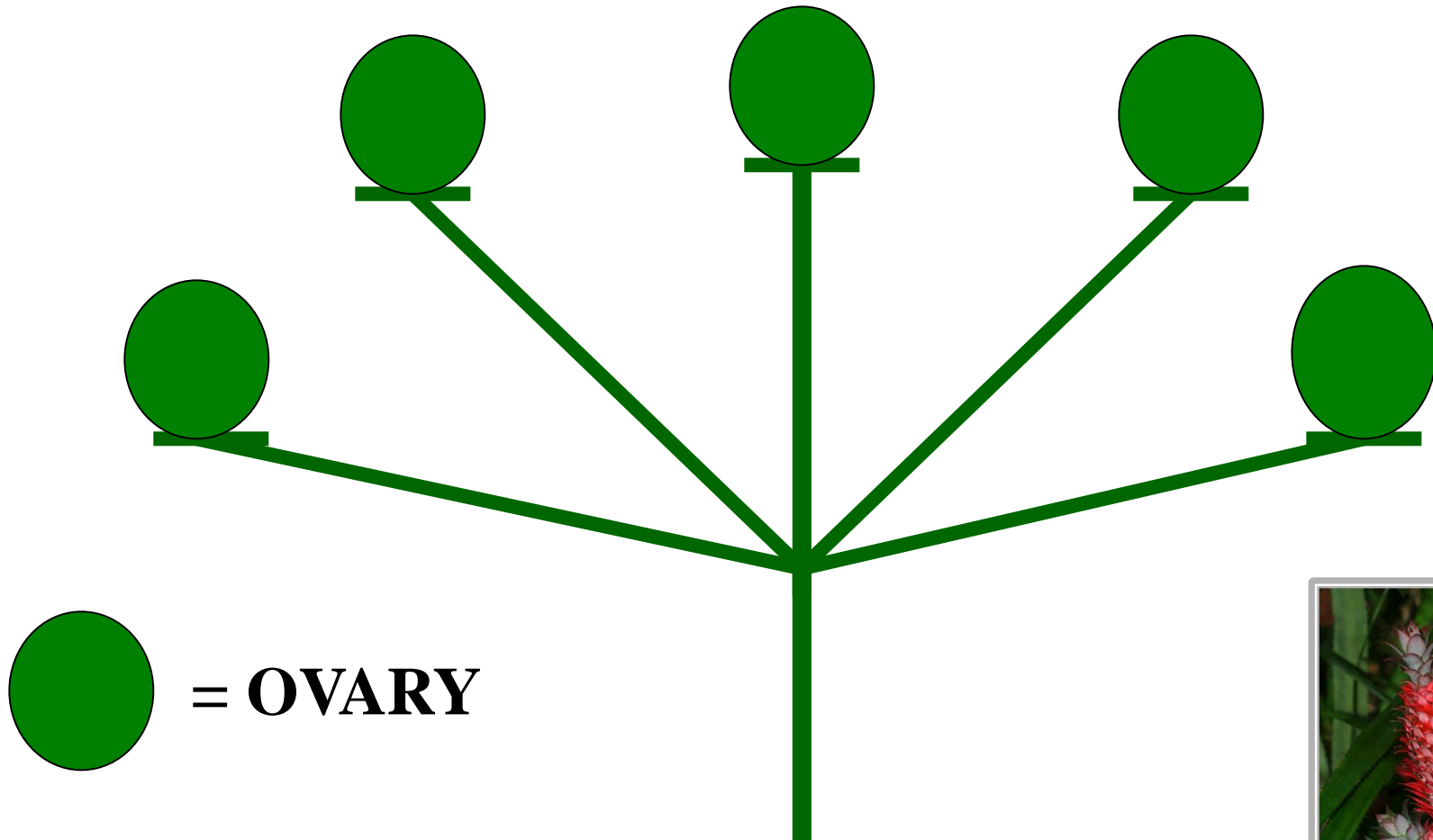






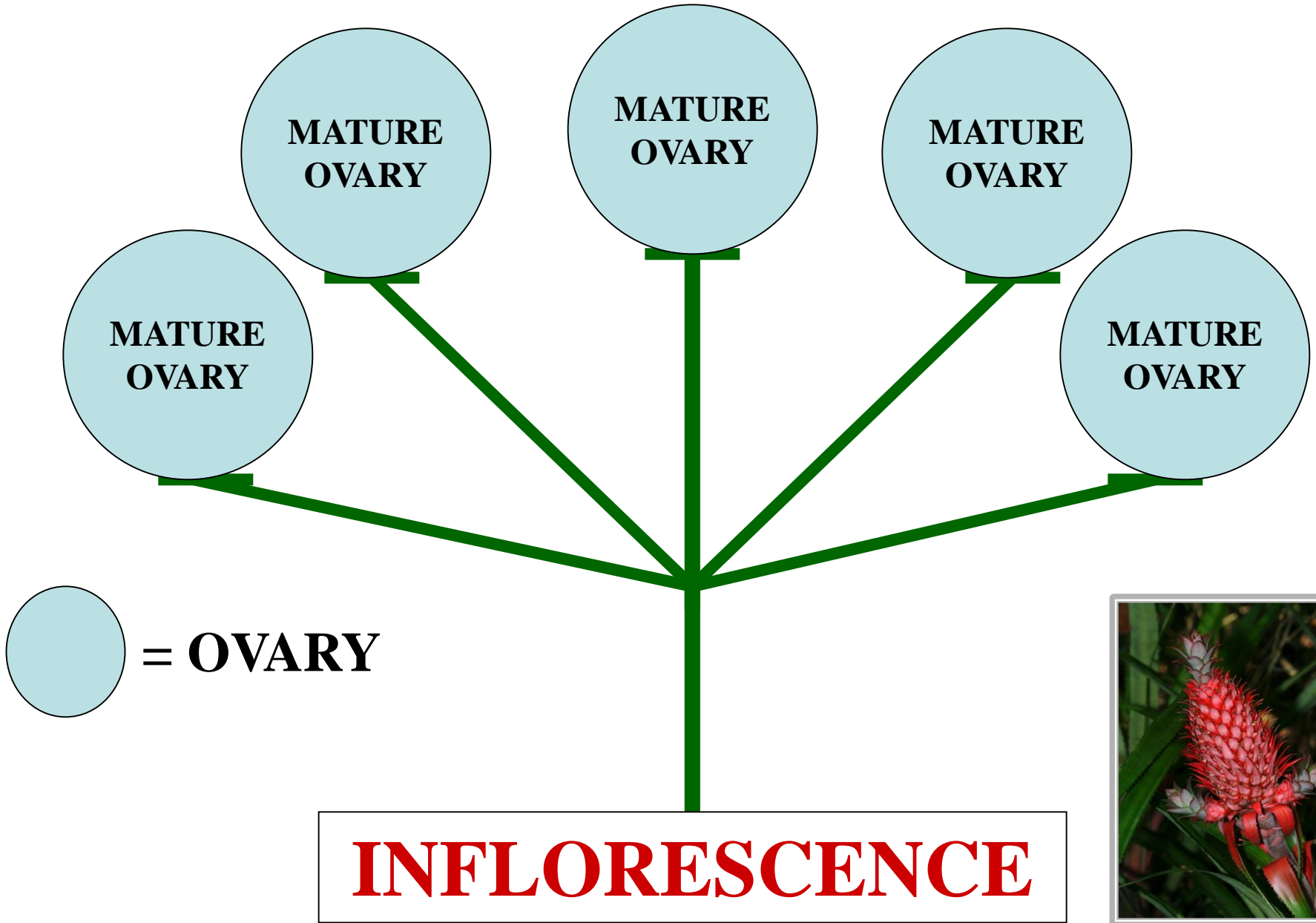
**INFLORESCENCE**

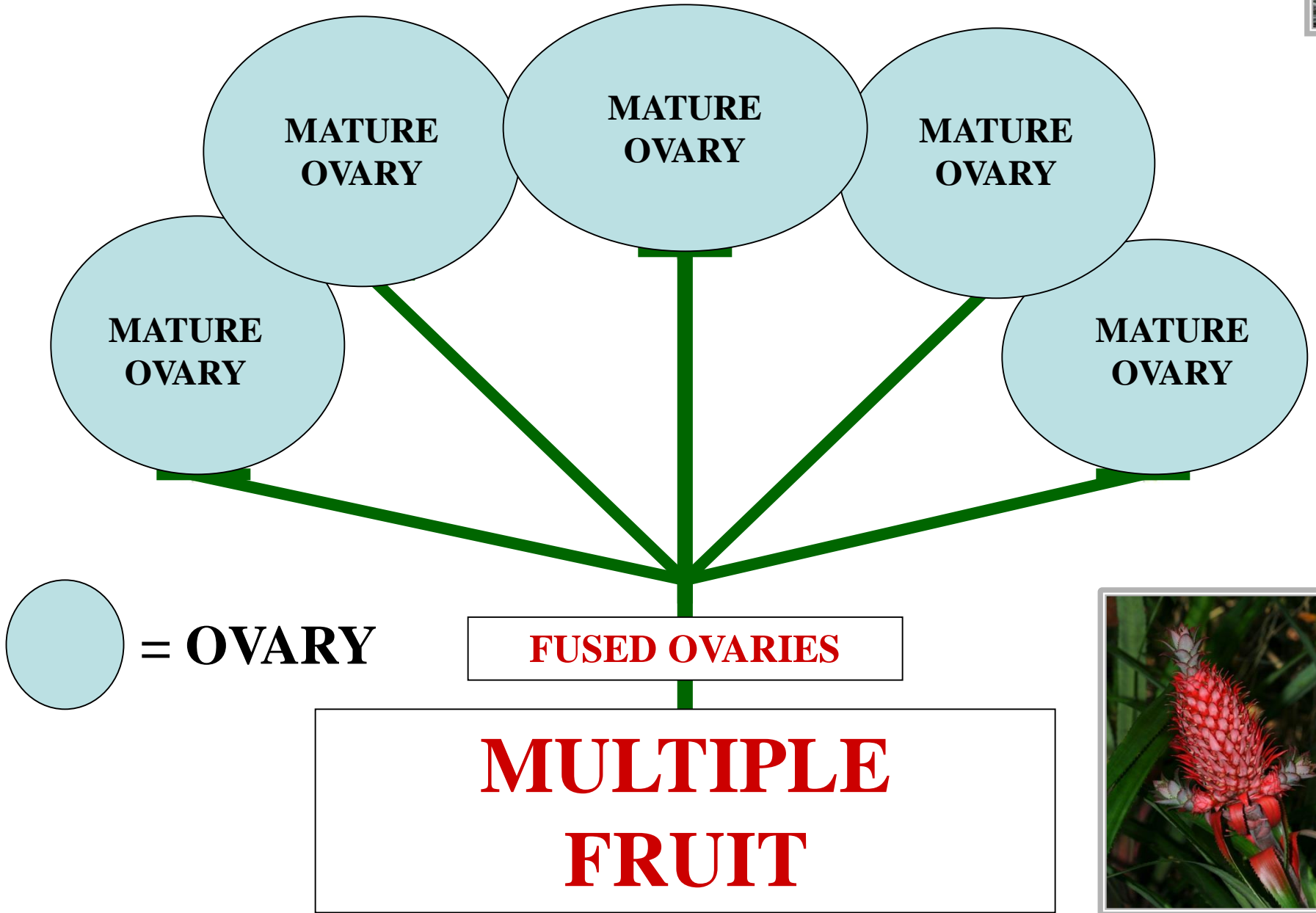




**INFLORESCENCE**











# FRUIT ANATOMY

# PERICARP

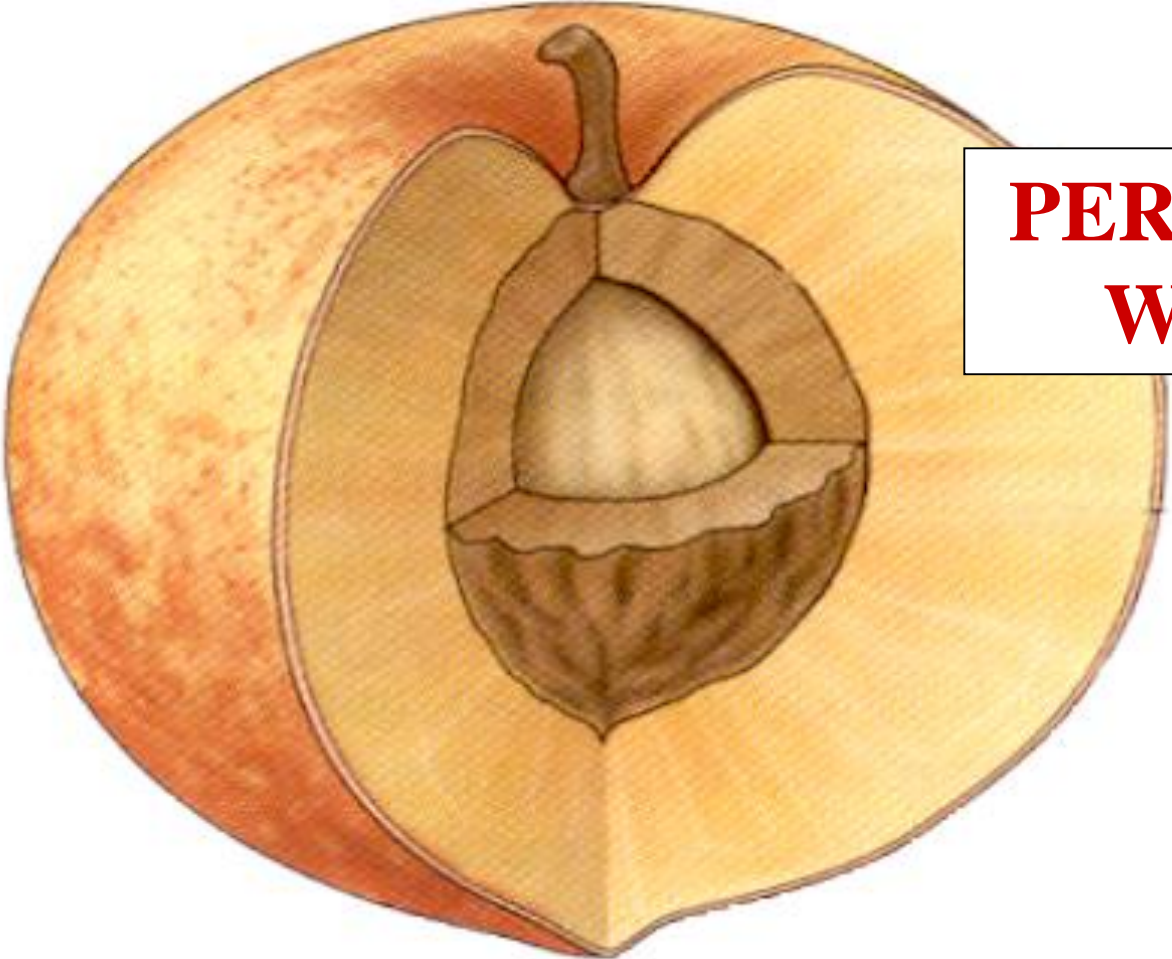




# PERICARP



**ANGIOSPERM FRUIT**



**PERICARP  
WALL**

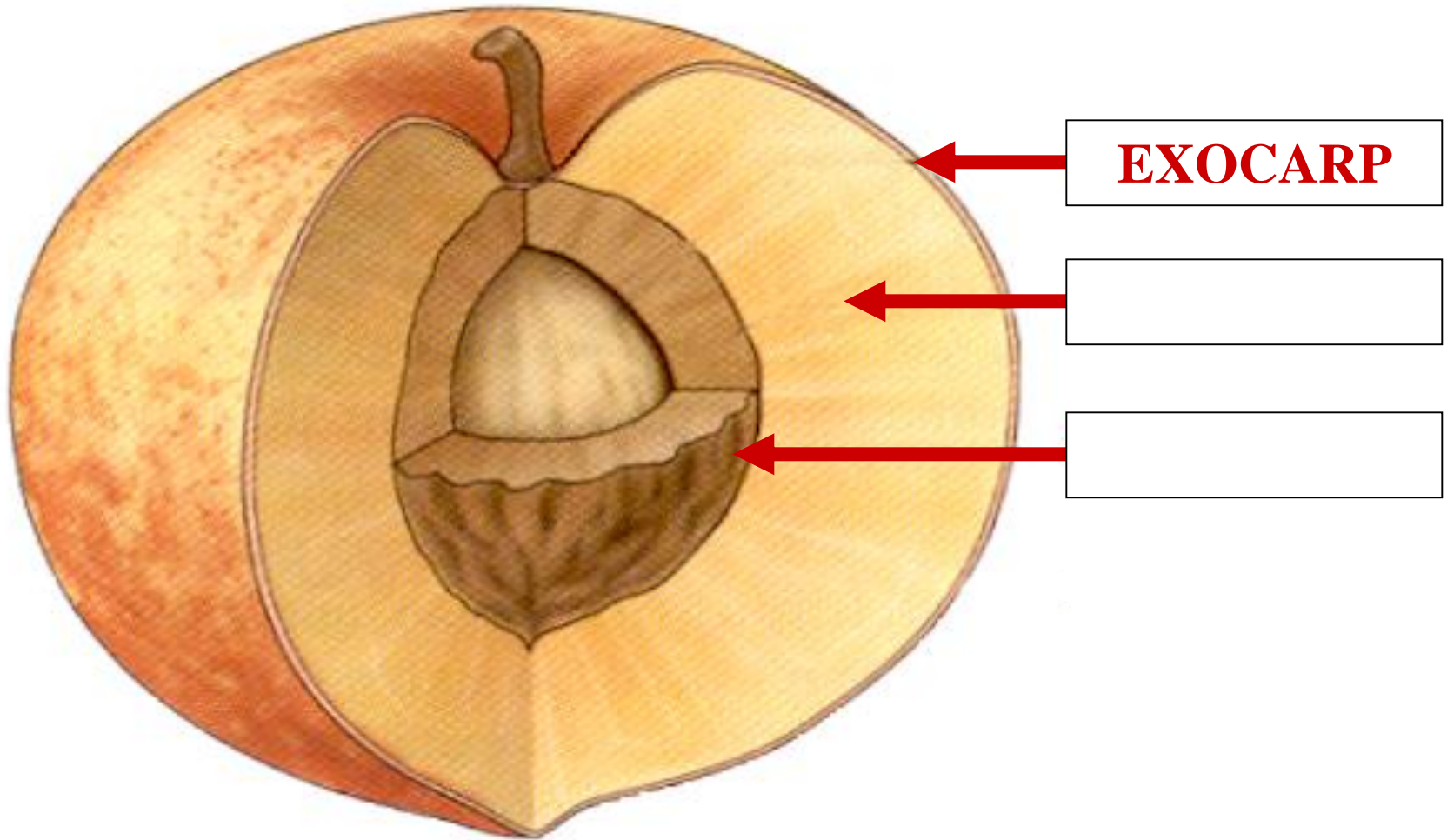
**ANGIOSPERM FRUIT**

# PERICARP LAYERS



# EXOCARP

# ANGIOSPERM FRUIT



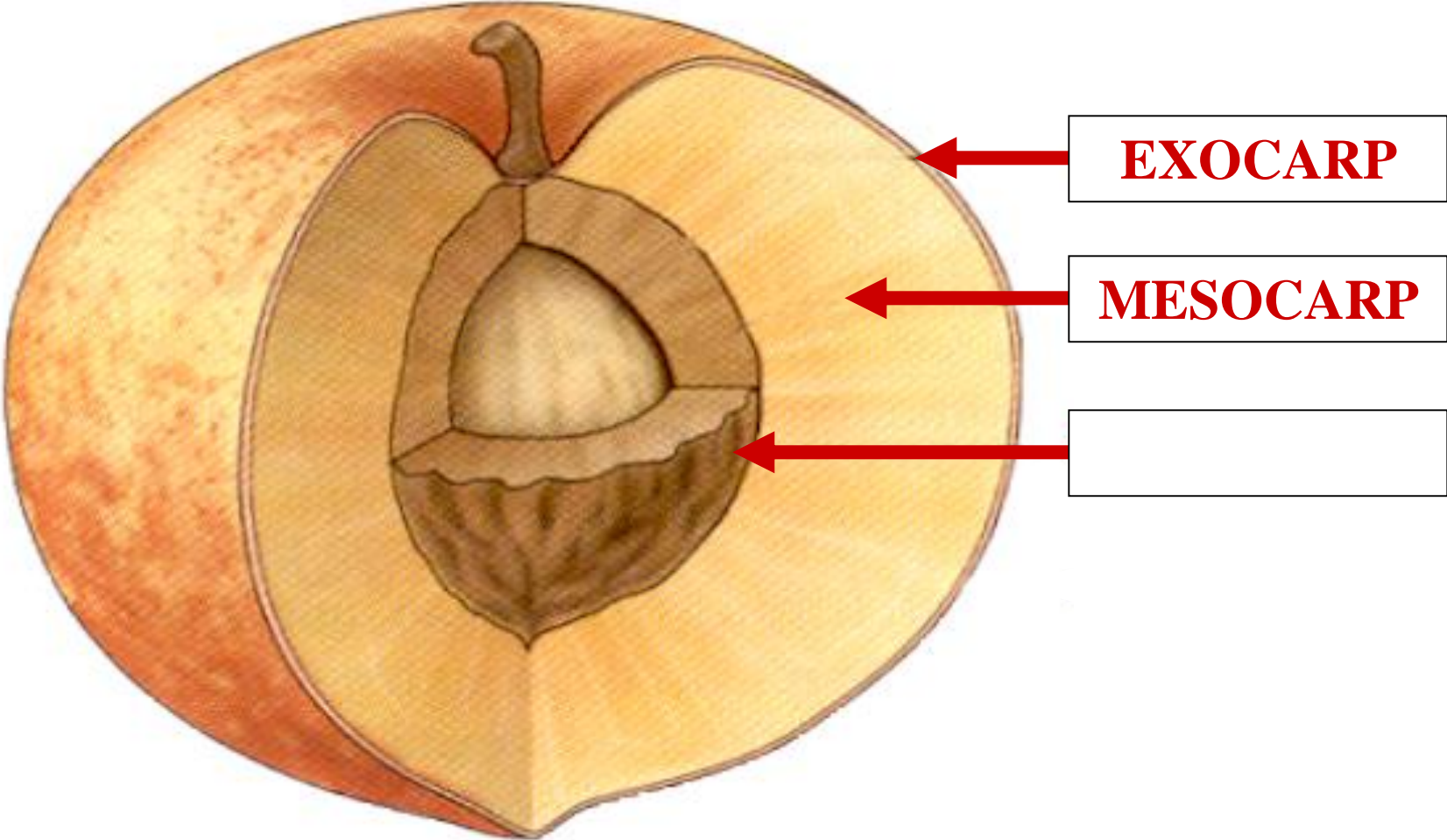
**EXOCARP**

**PERICARP**



# MESOCARP

# ANGIOSPERM FRUIT



EXOCARP

MESOCARP

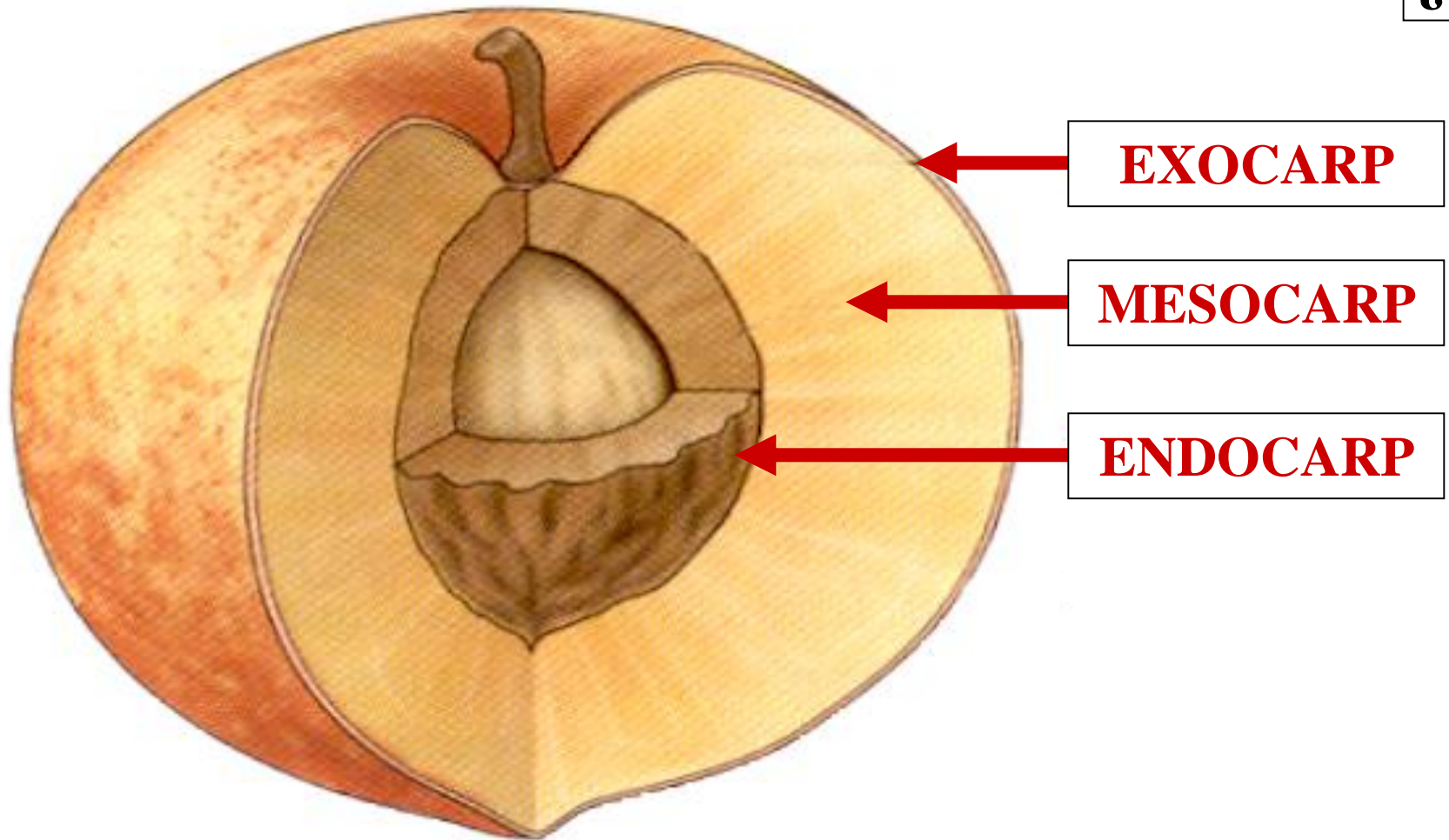
PERICARP



# ENDOCARP

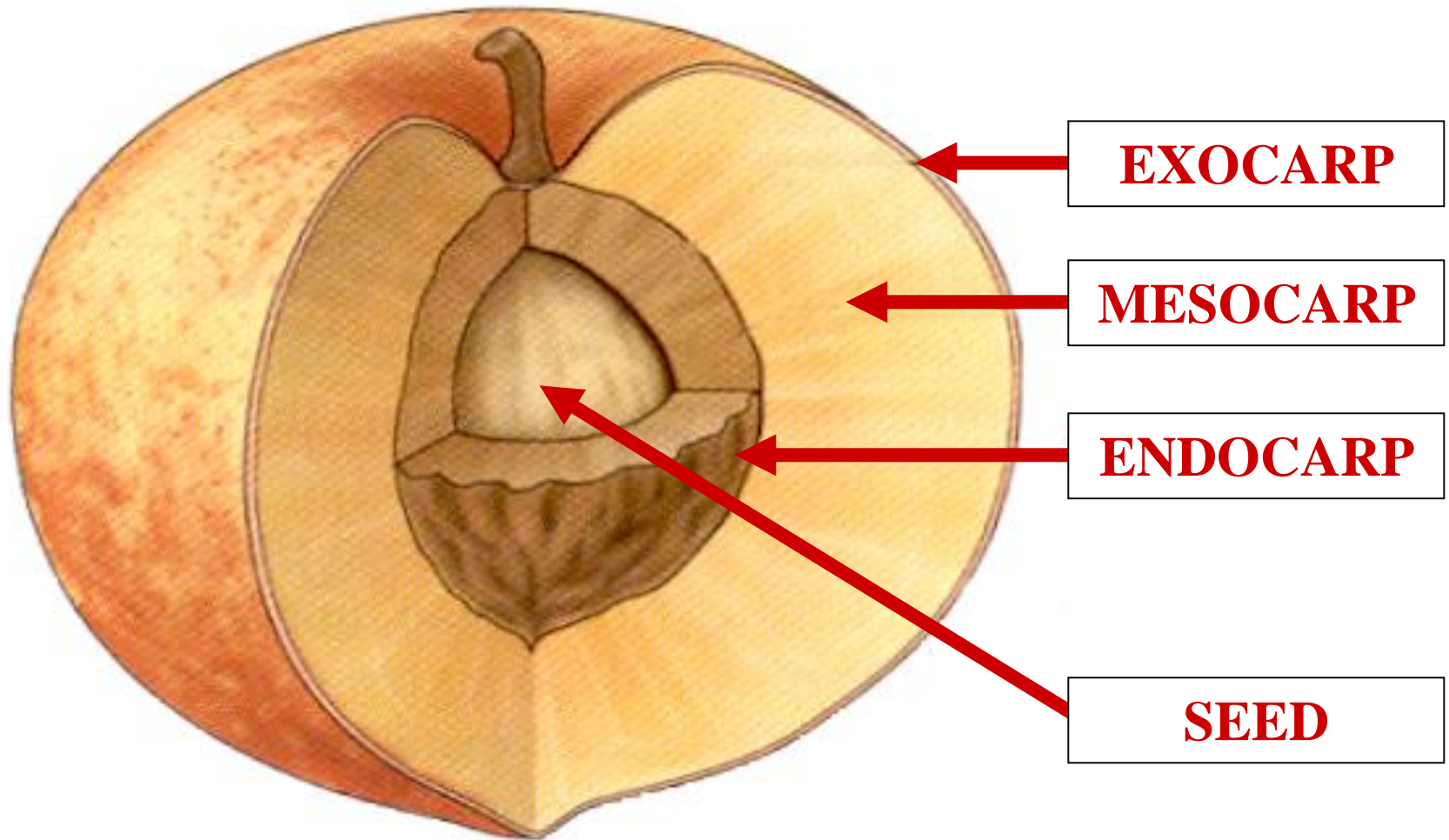


# ANGIOSPERM FRUIT



**PERICARP**

# ANGIOSPERM FRUIT



**EXOCARP**

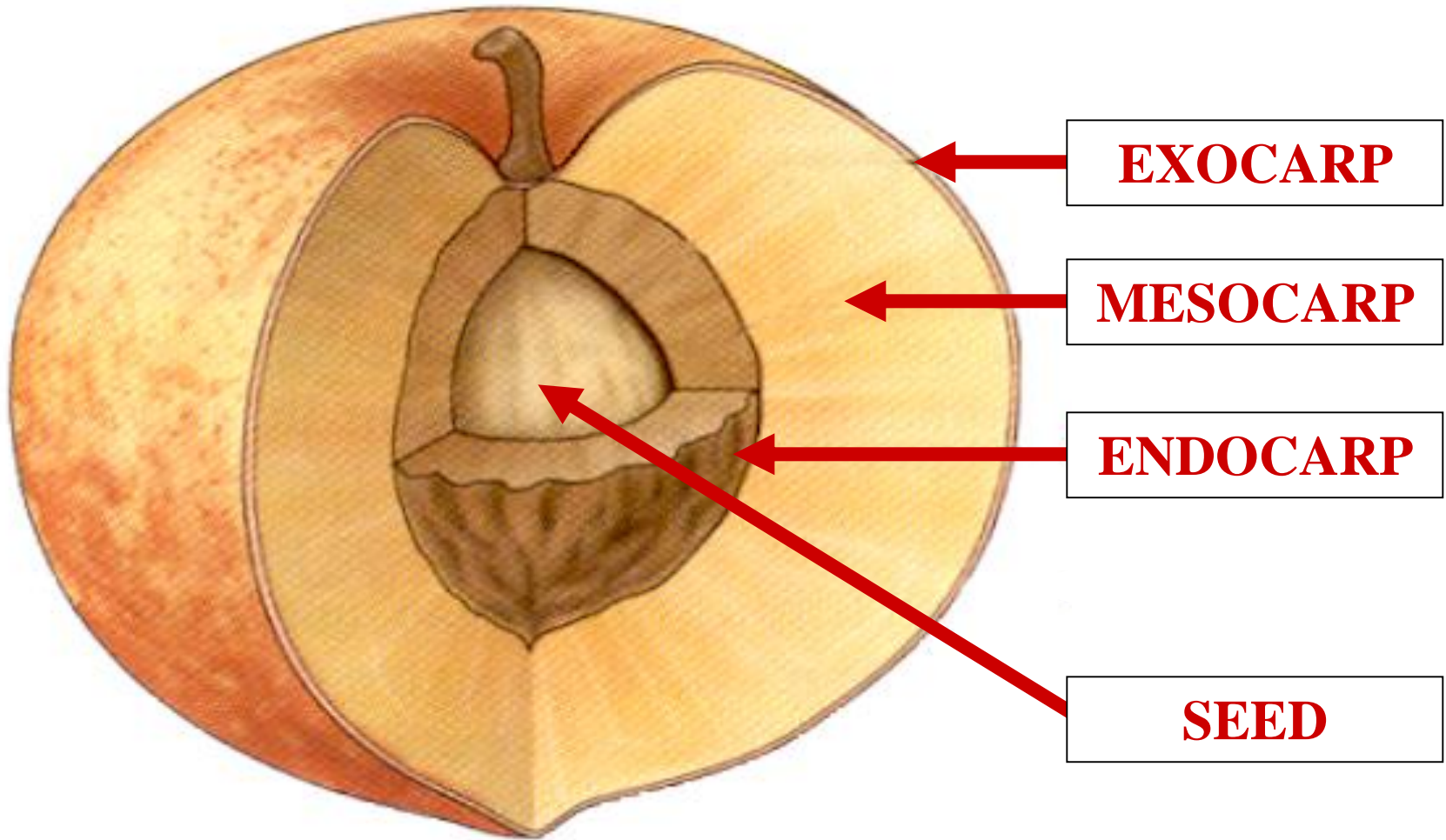
**MESOCARP**

**ENDOCARP**

**SEED**

**PERICARP**

# ANGIOSPERM FRUIT



**PREICARP LAYERS  
NOT ALWAYS DISCERNIBLE**



**ATTENTION STUDENTS**



**REQUIRED MATERIAL**

**LAB EXAM #5**

**&**

**FINAL EXAM**