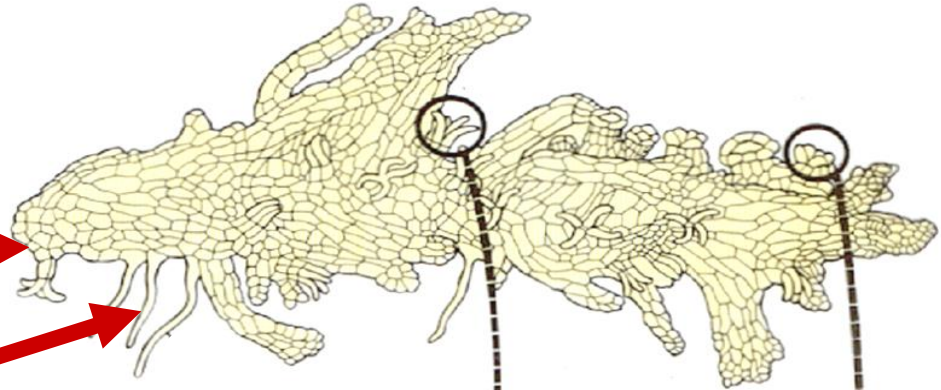


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BISEXUAL

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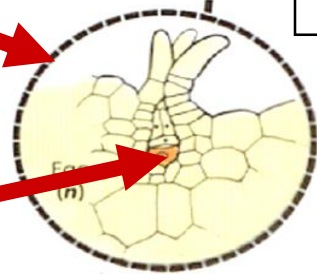


**ARCHEGONIA
MATURE
BEFORE
ANTHERIDIA**

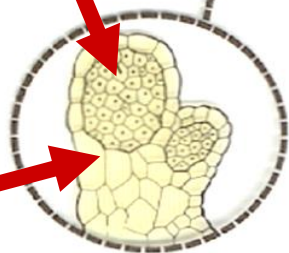
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ANTHERIDIUM

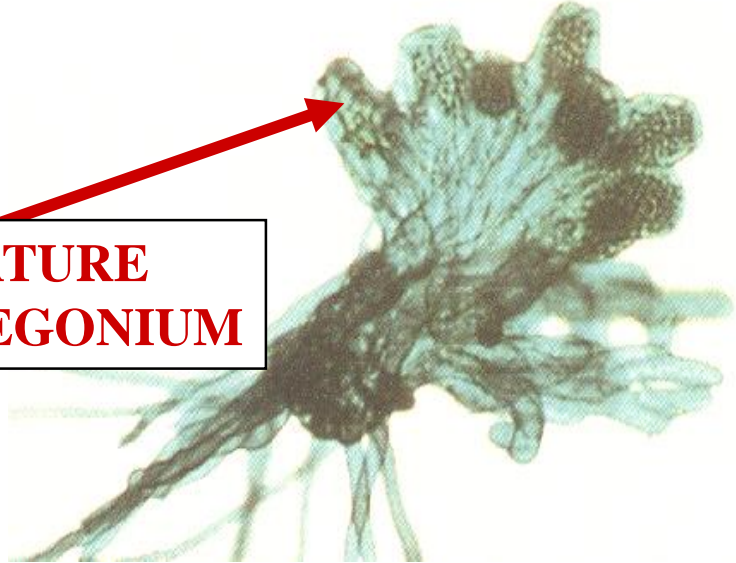


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**ARCHEGONIA
MATURE
BEFORE
ANTHERIDIA**

**MATURE
ARCHEGONIUM**



GAMETOPHYTE



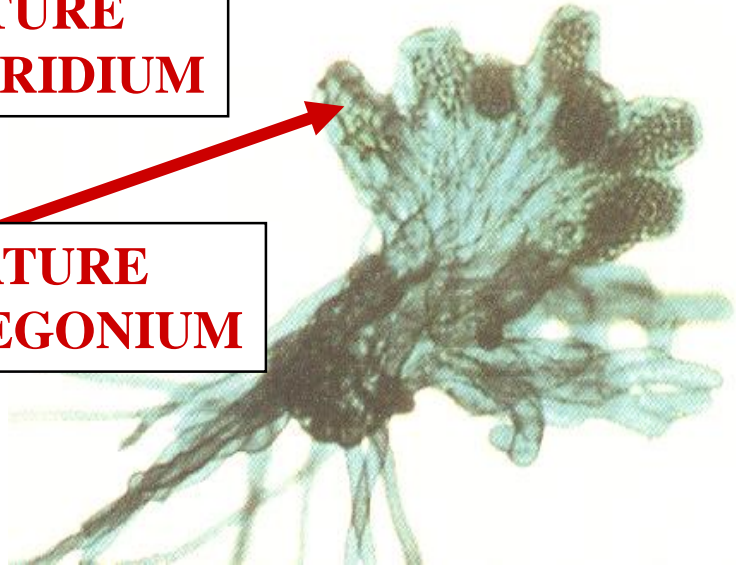
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BEFORE
ANTHERIDIA**

**MATURE
ANTHERIDIUM**

**MATURE
ARCHEGONIUM**

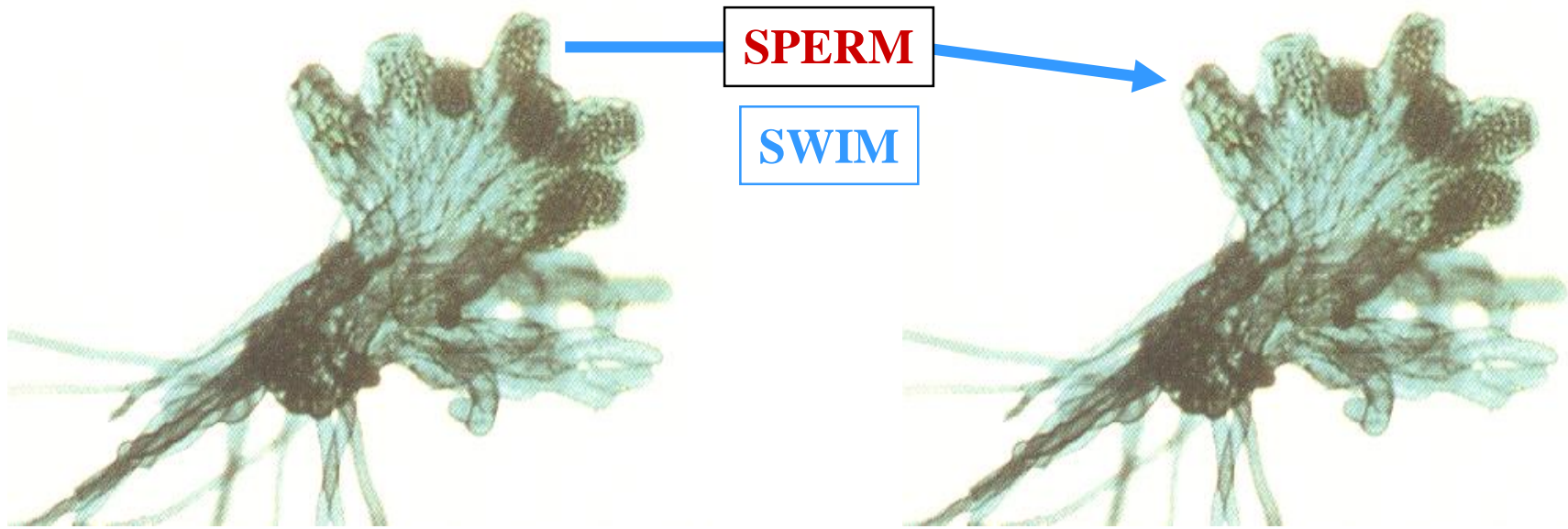


GAMETOPHYTE



GAMETOPHYTE

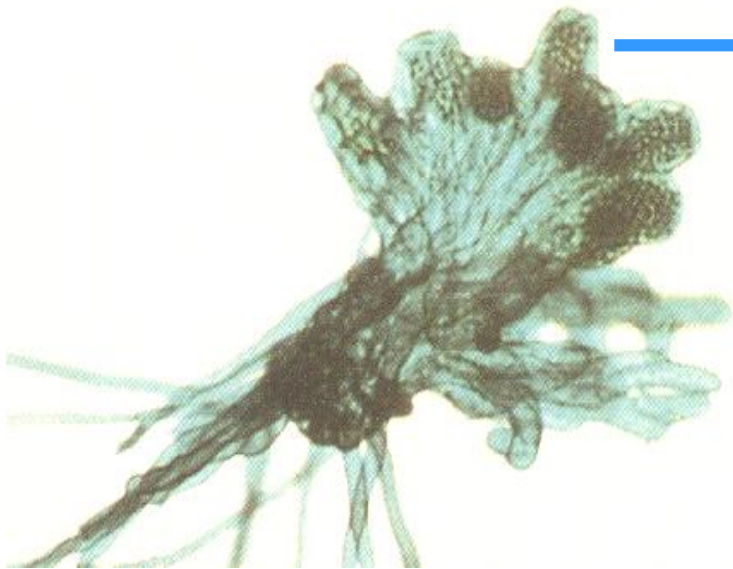
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BEFORE
ANTHERIDIA**



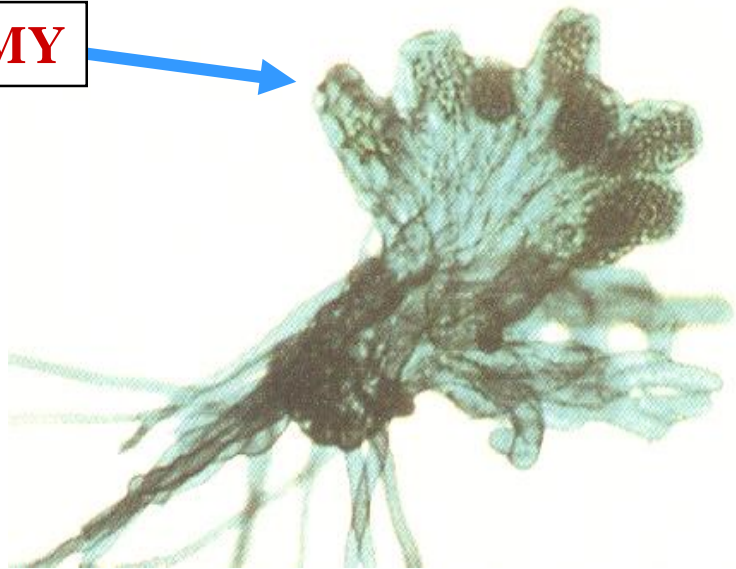
GAMETOPHYTE

GAMETOPHYTE

**ARCHEGONIA
MATURE
BEFORE
ANTHERIDIA**



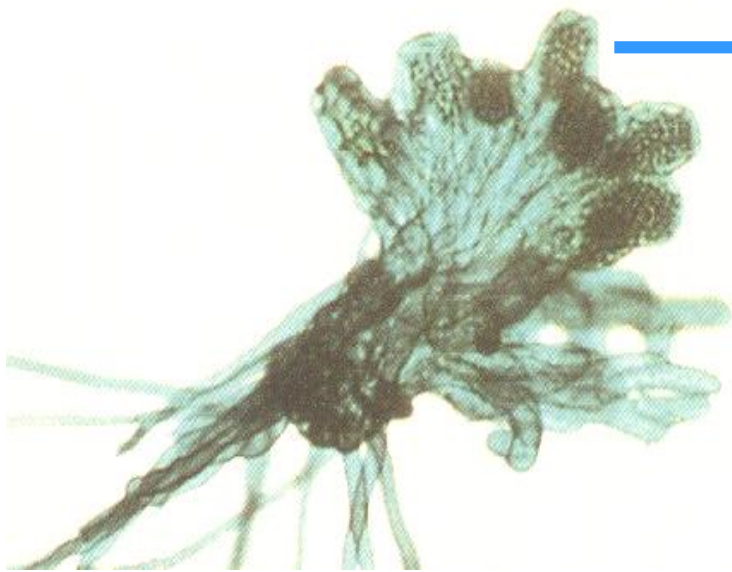
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GAMETOPHYTE

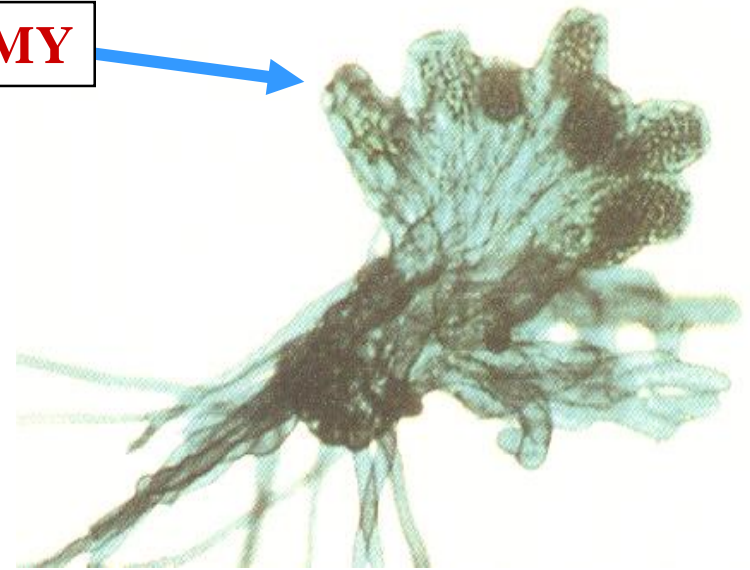
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**ARCHEGONIA
MATURE
BEFORE
ANTHERIDIA**



GAMETOPHYTE

SYNGAMY

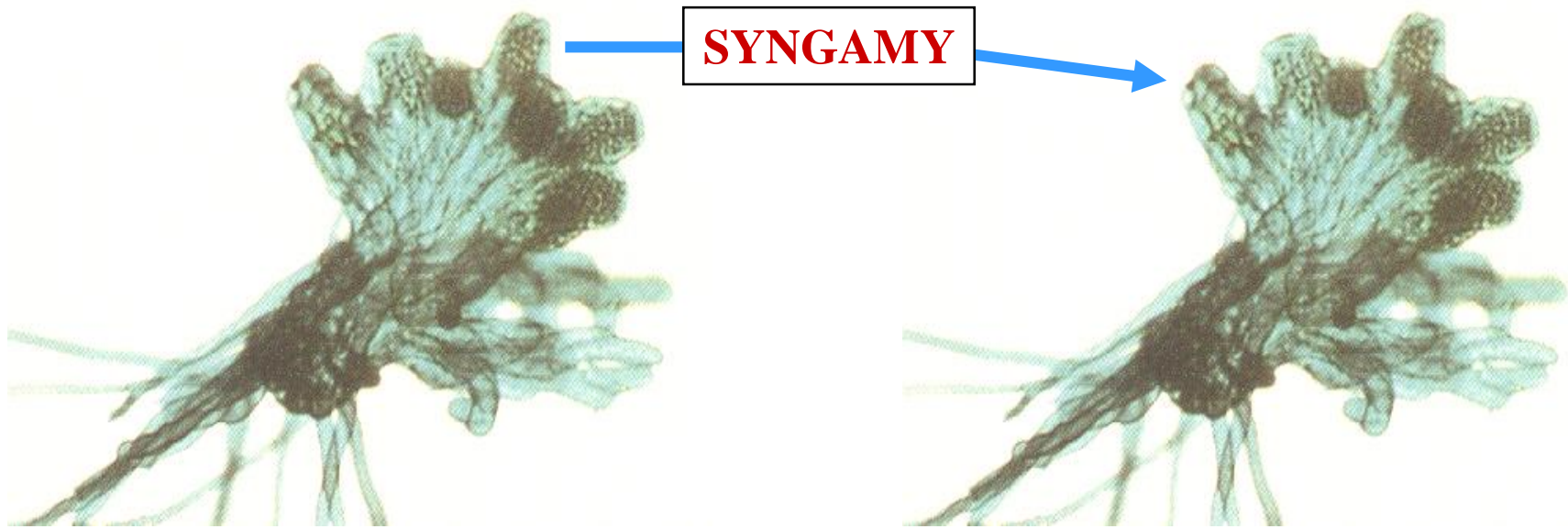


GAMETOPHYTE

GAMETANGIA MATURATION: DICHOTOMY



**ARCHEGONIA
MATURE
BEFORE
ANTHERIDIA**

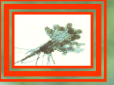


SYNGAMY

GAMETOPHYTE

GAMETOPHYTE

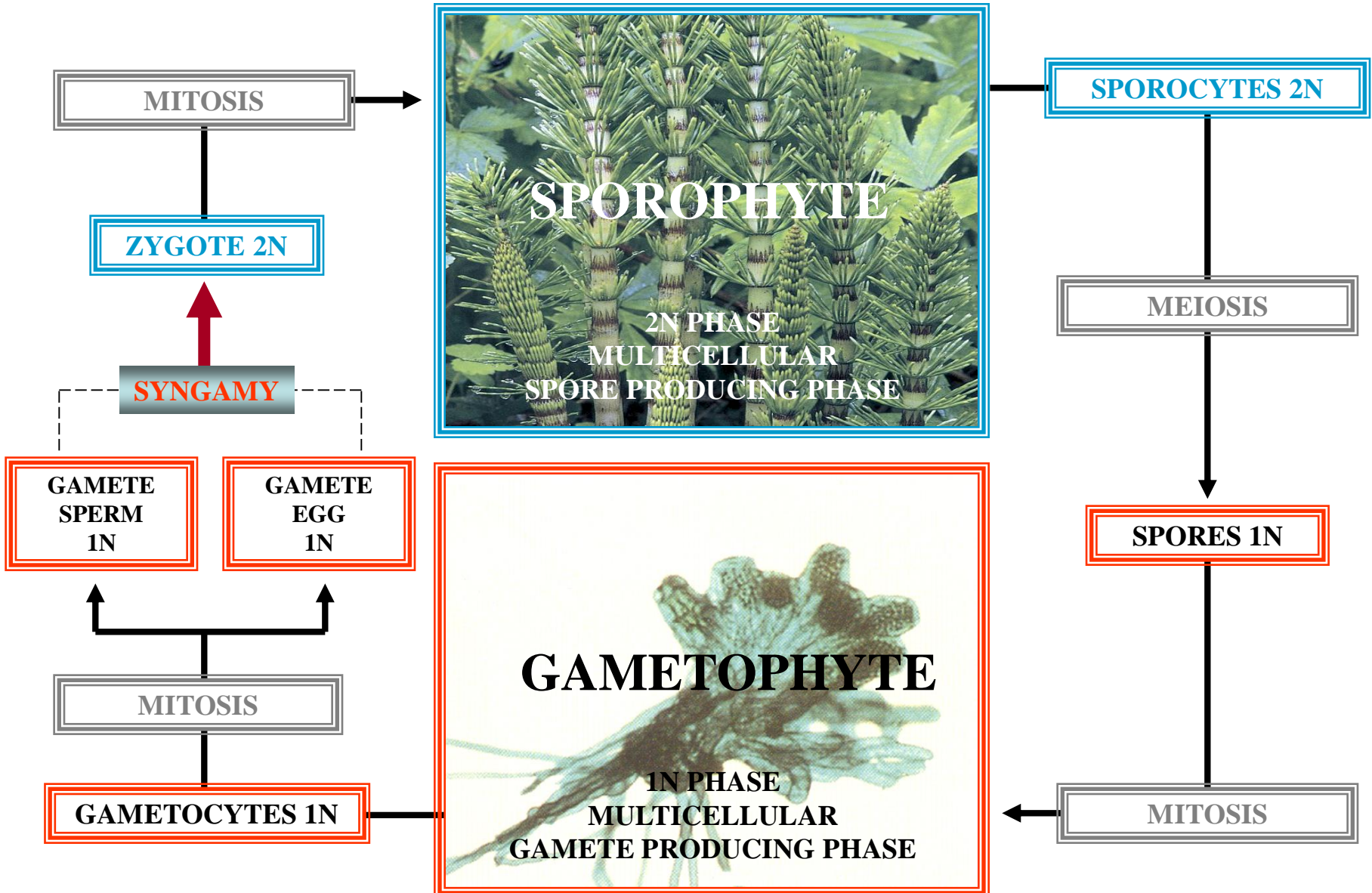
**GAMETANGIA MATURATION: DICHOTOMY
ENSURES GAMETOPHYTE “OUT-CROSSING”**



ENSURES GENETIC DIVERSITY

EQUISETUM

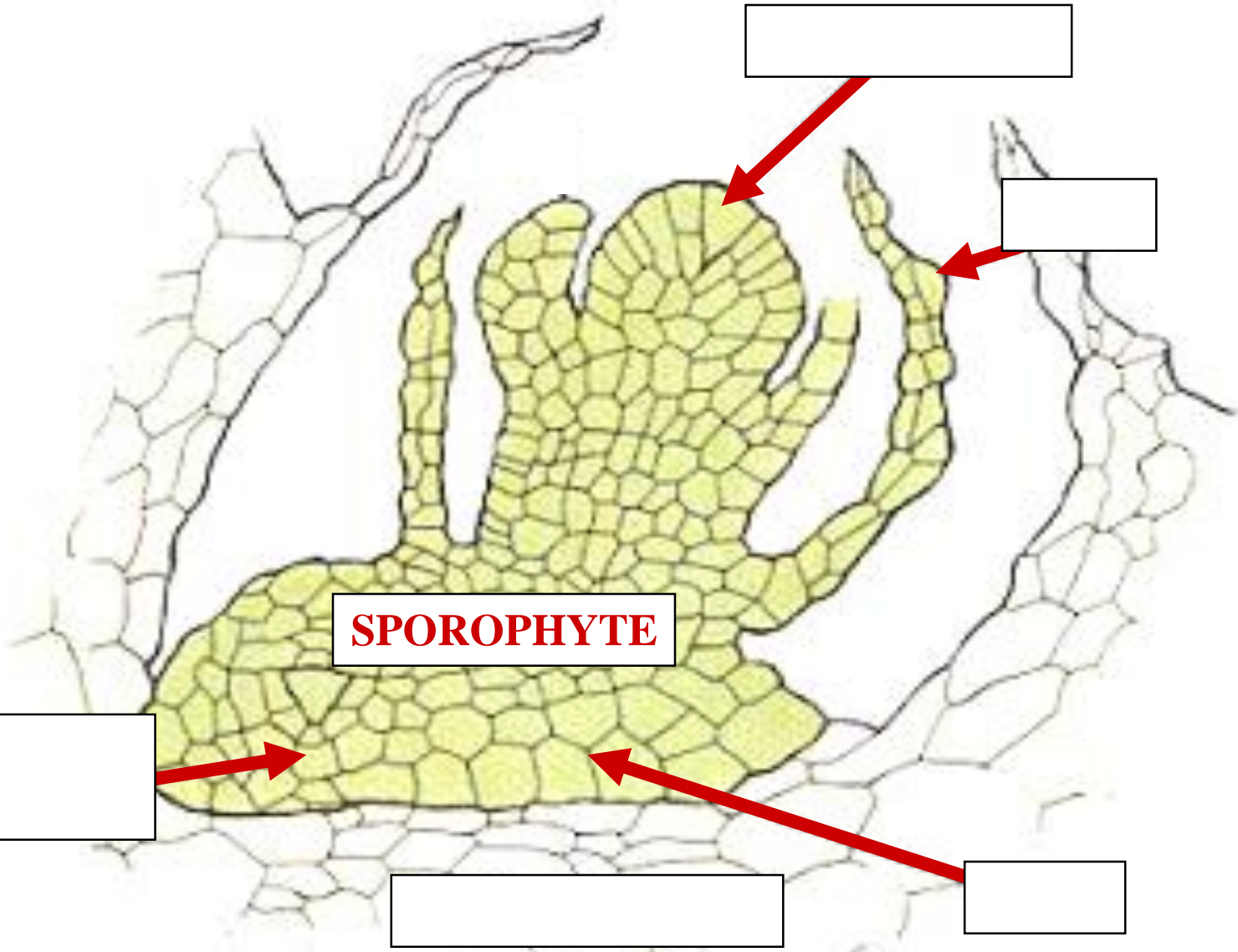
EQUISETALES LIFE CYCLE



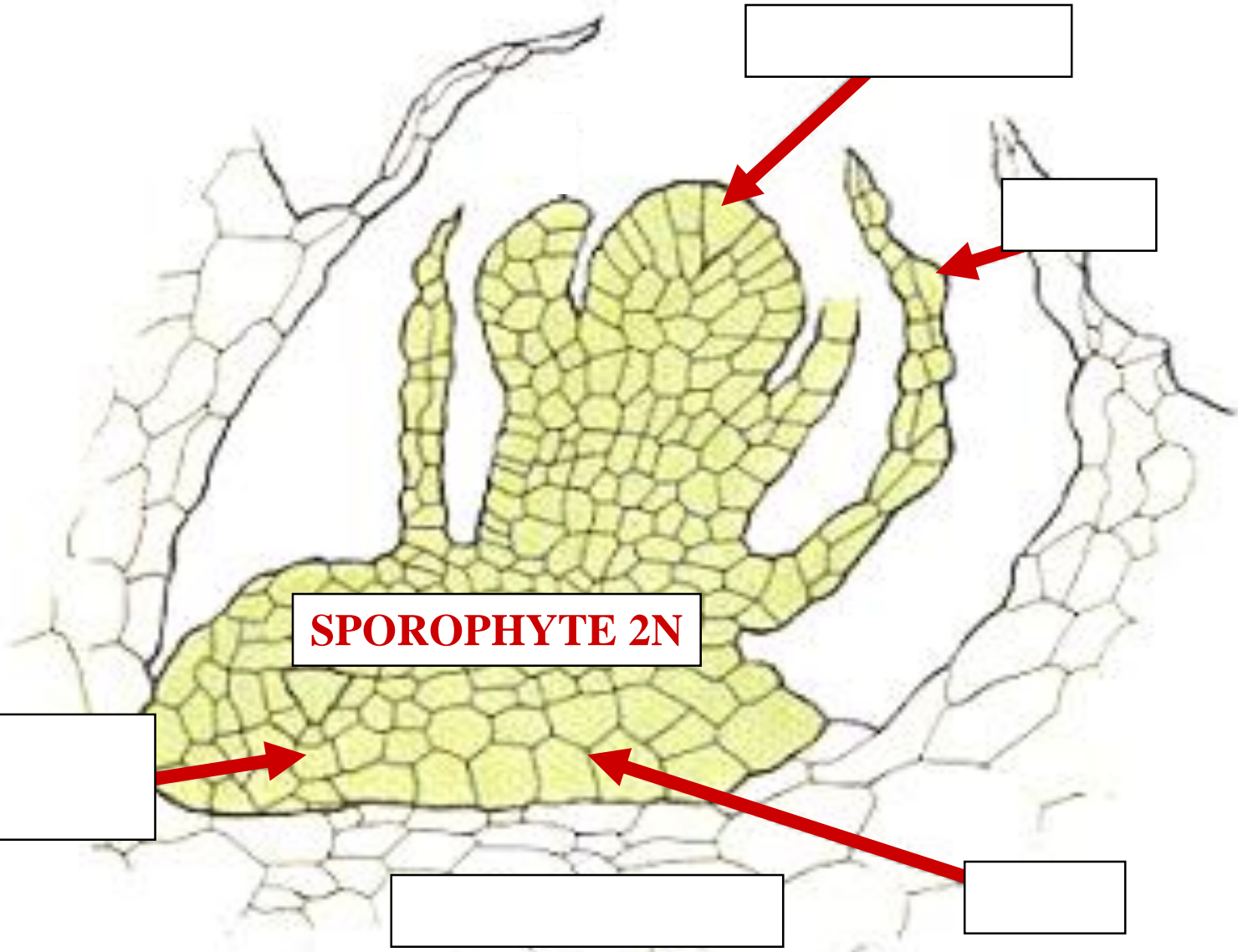


REPRODUCTION

EQUISETUM
LIFE CYCLE



SPOROPHYTE



SPOROPHYTE 2N

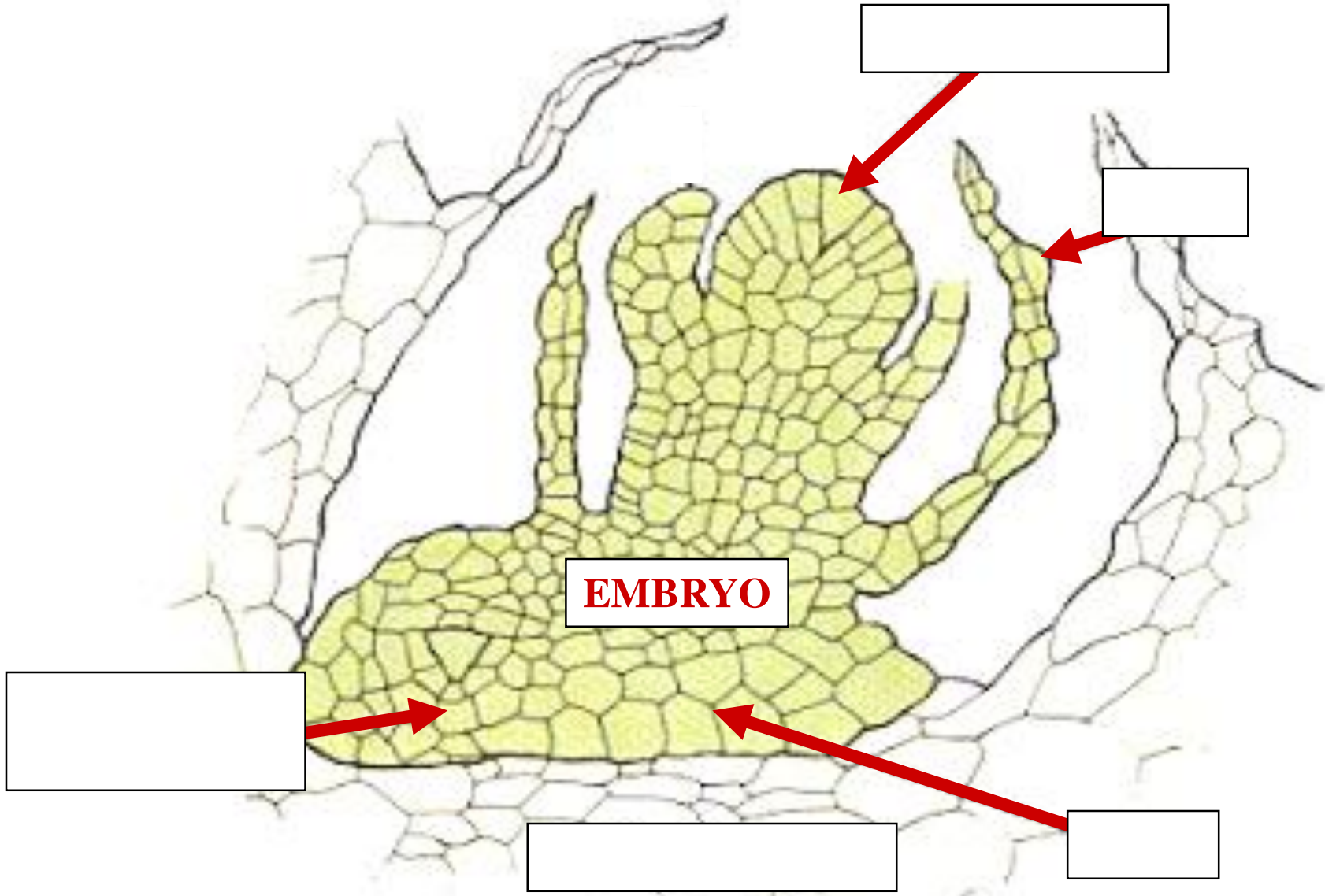
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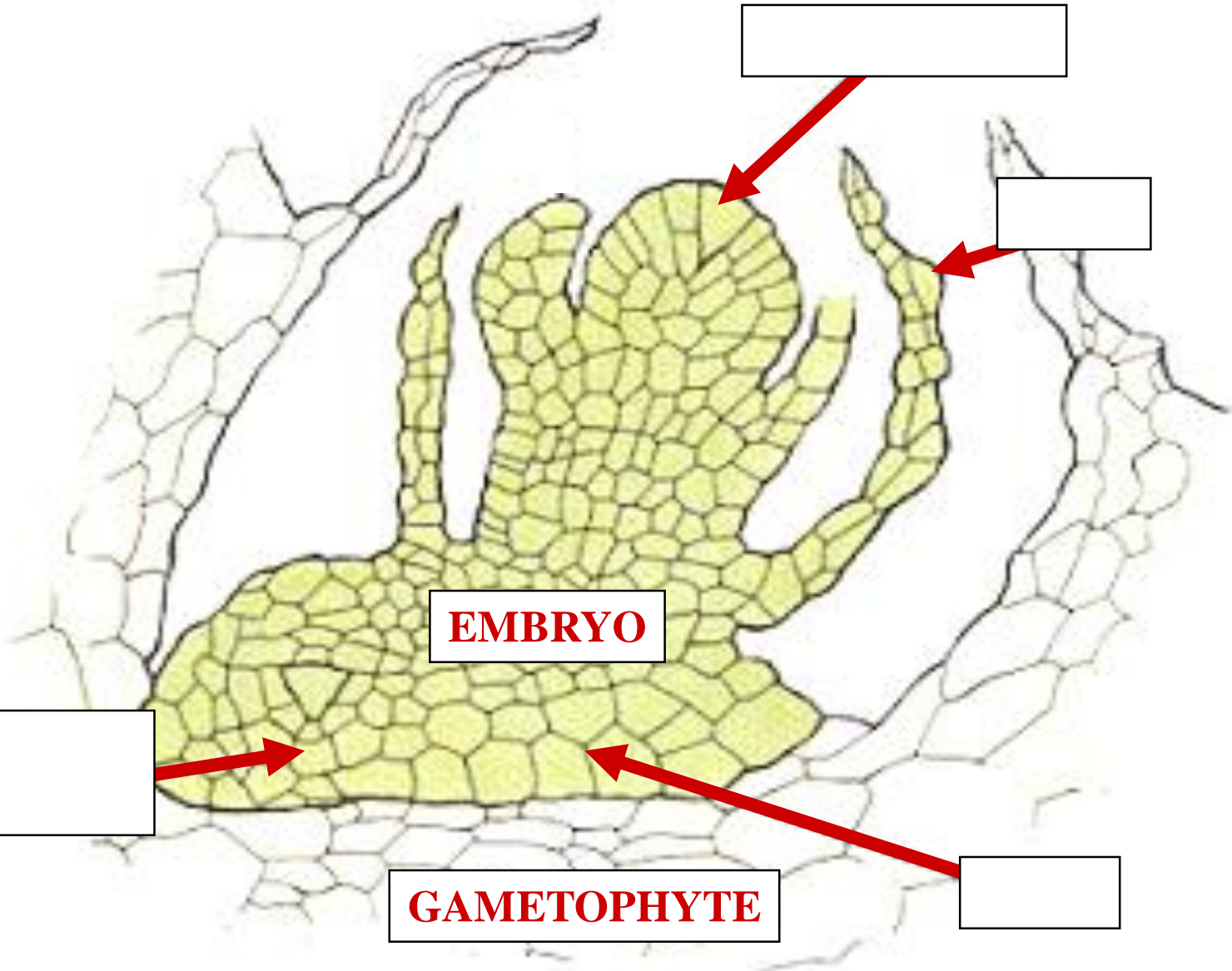
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EMBRYO

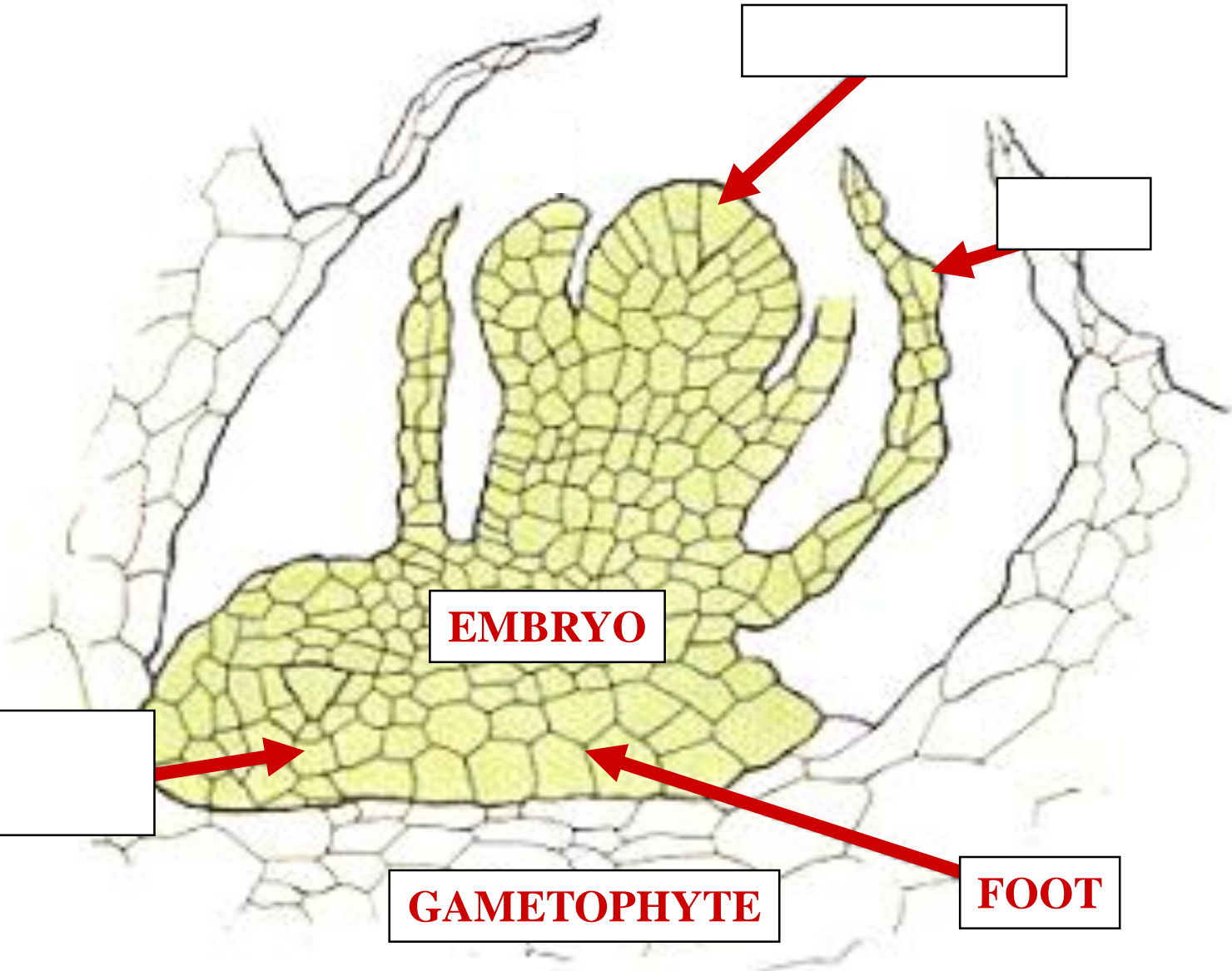
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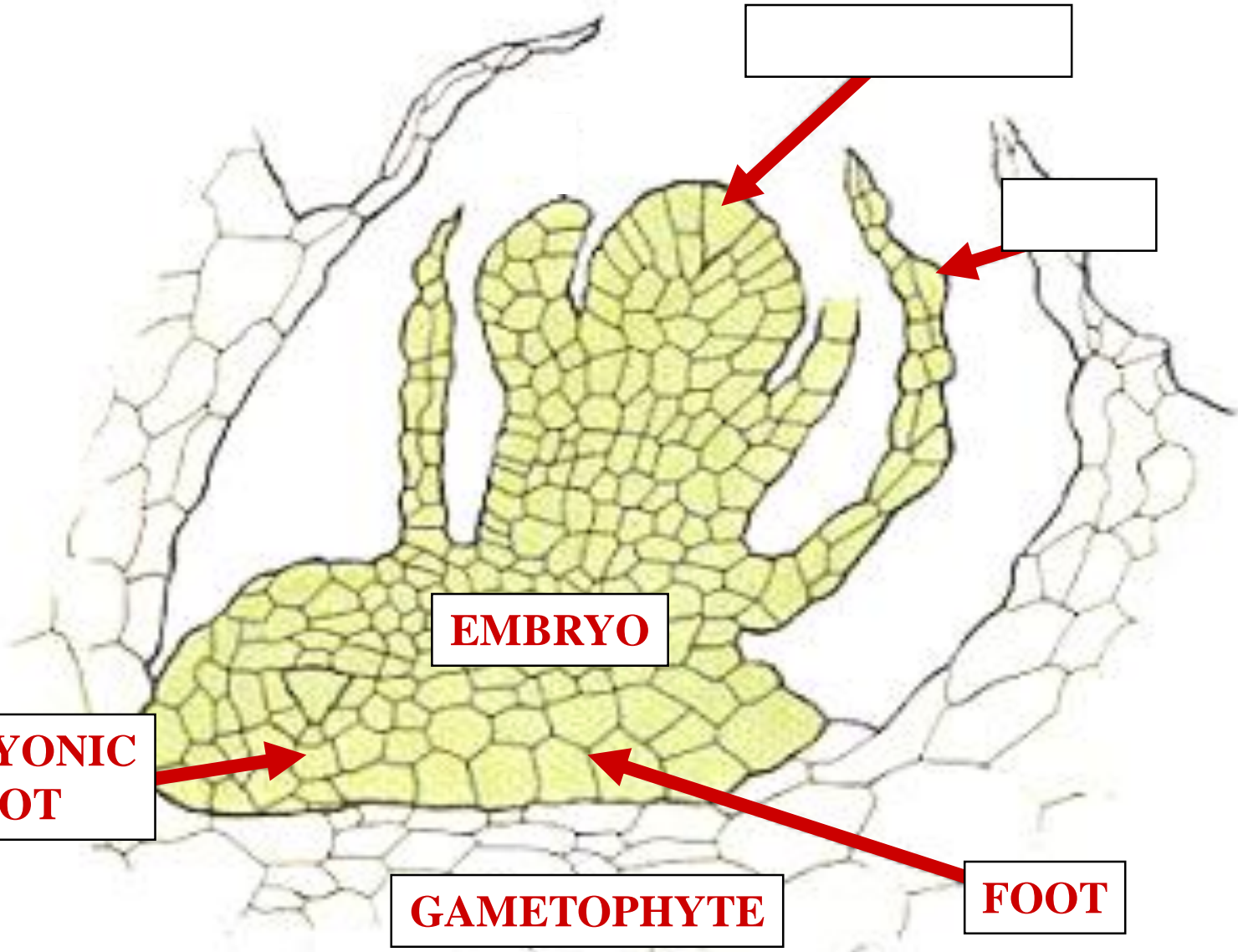
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FOOT

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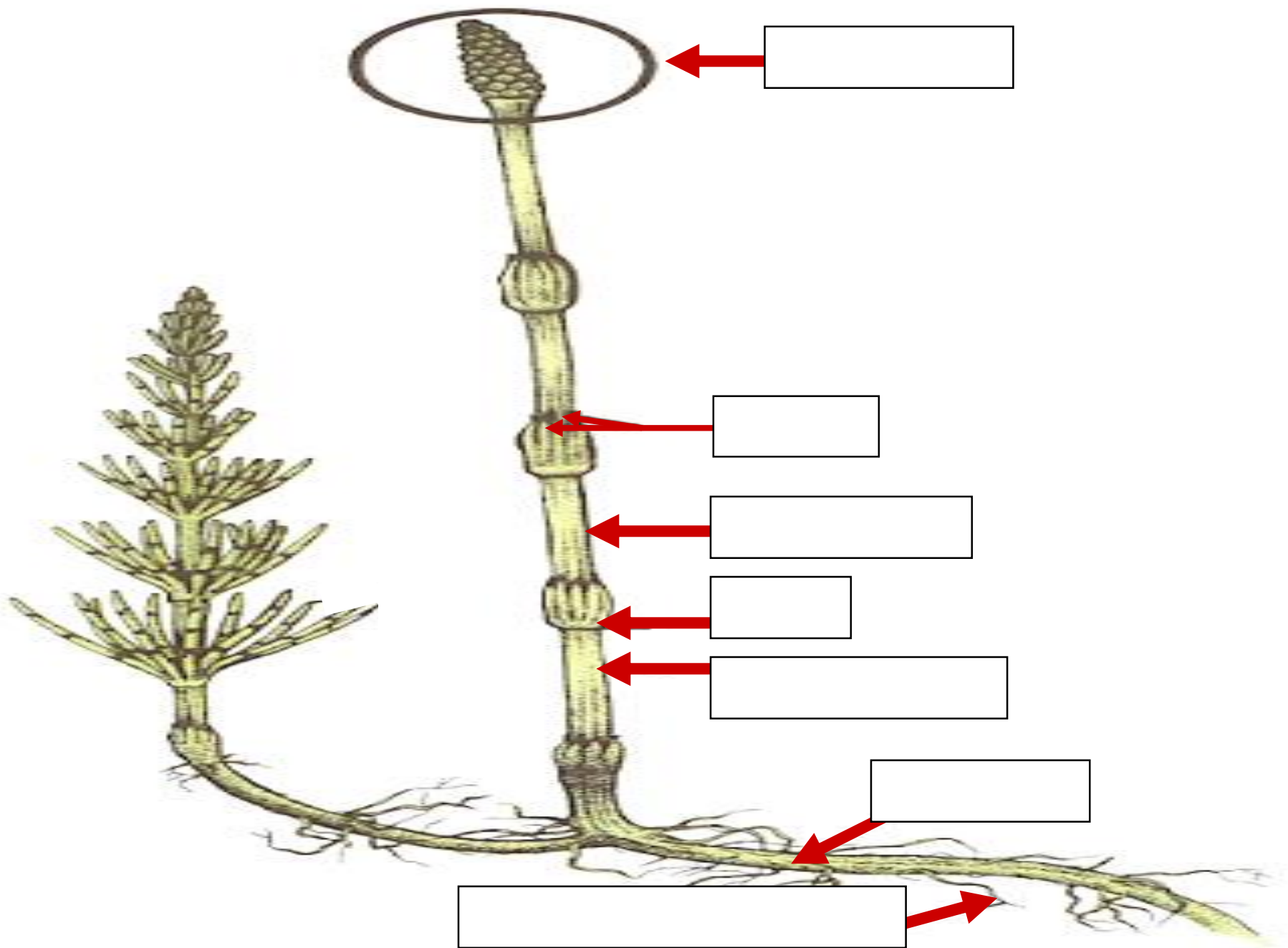
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ROOT**

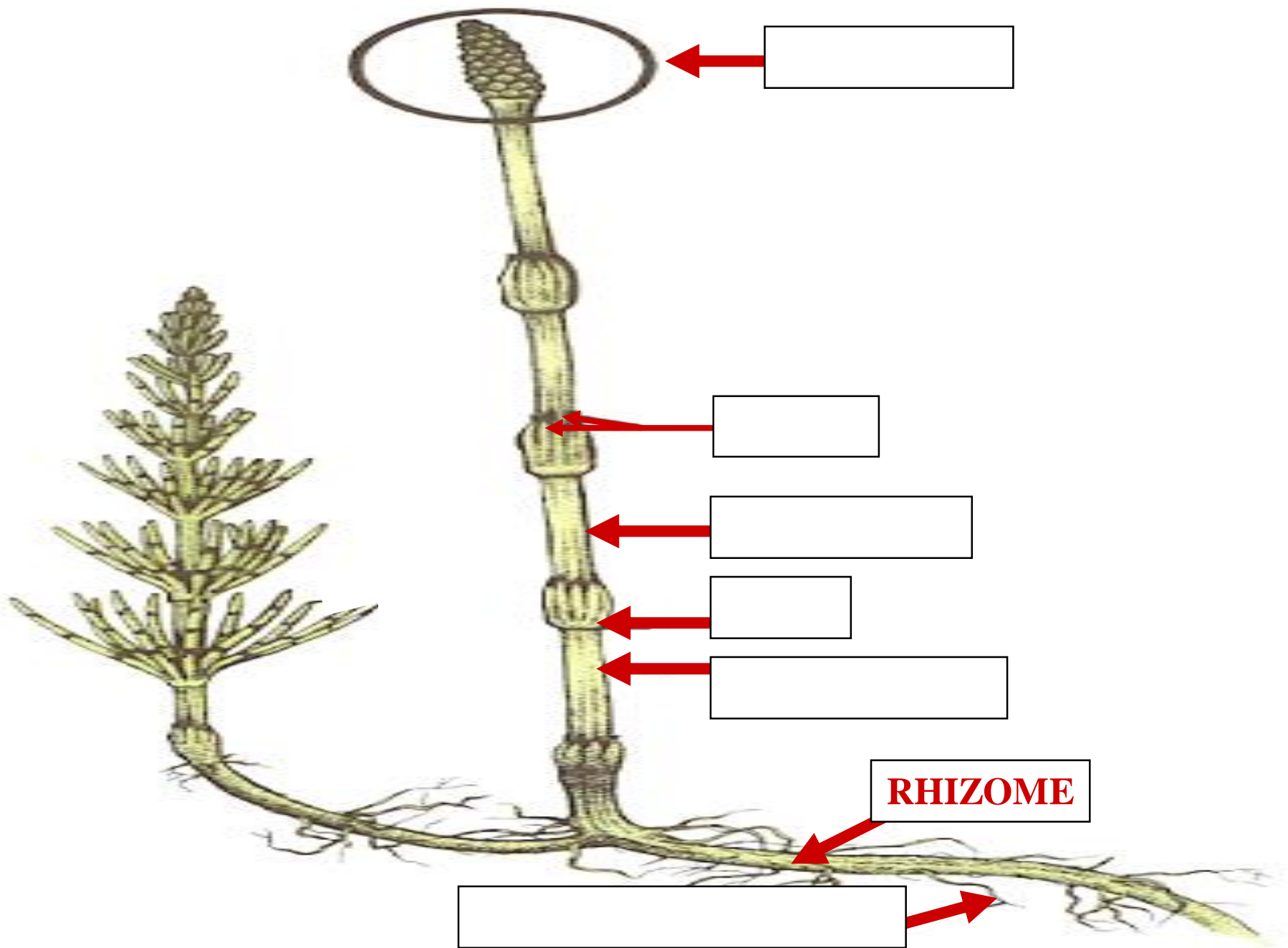
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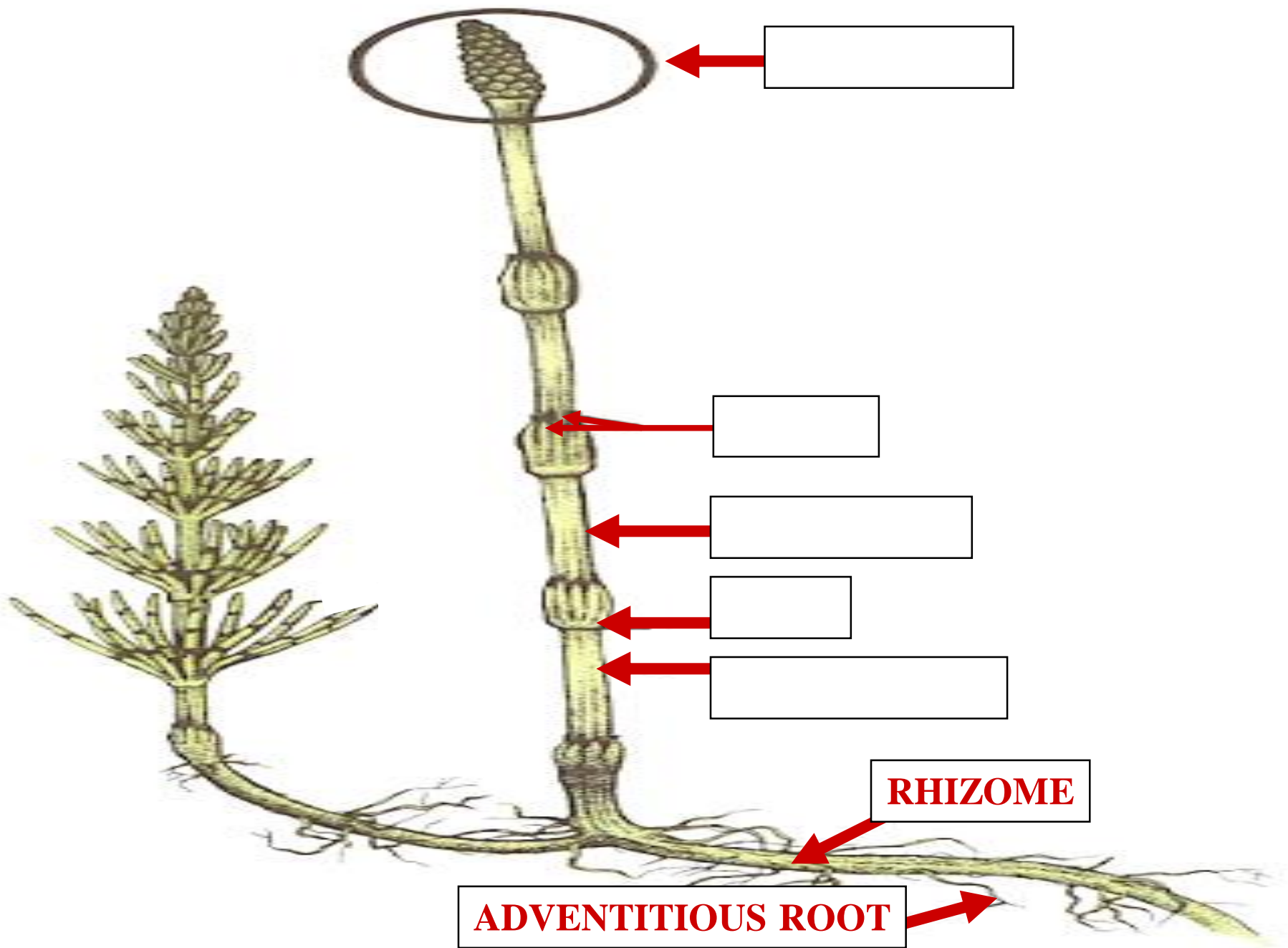
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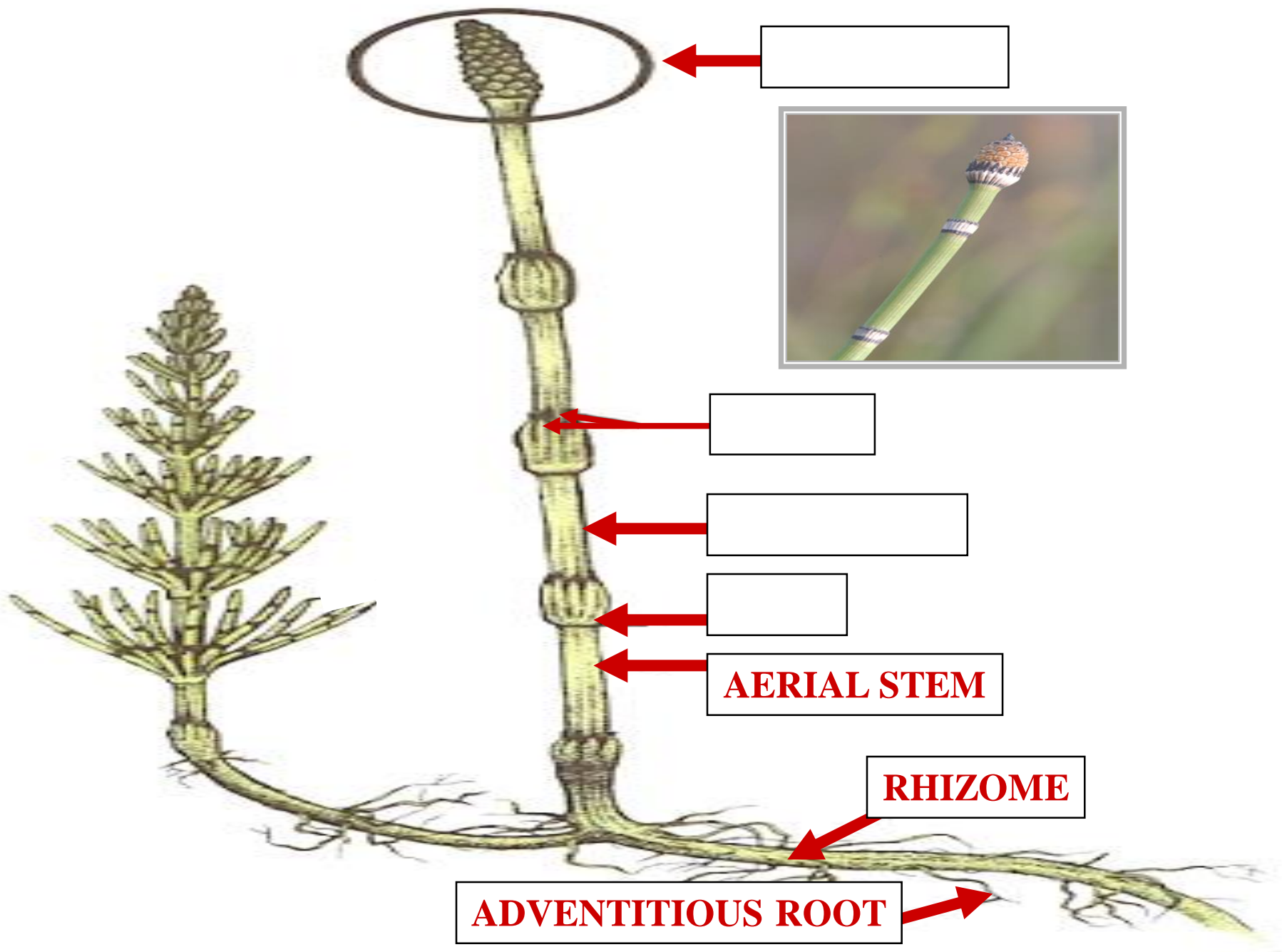
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RHIZOME

ADVENTITIOUS ROOT



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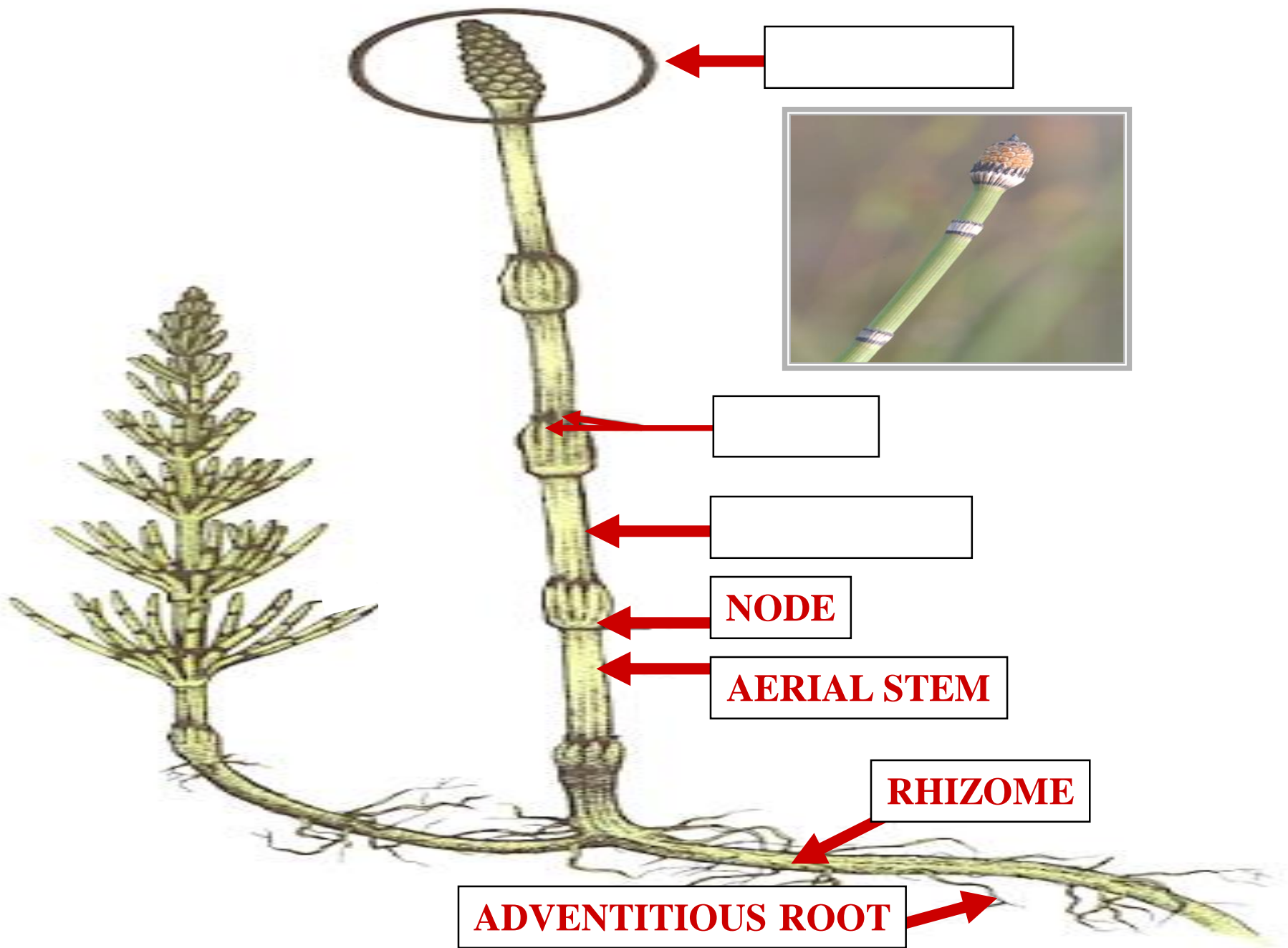
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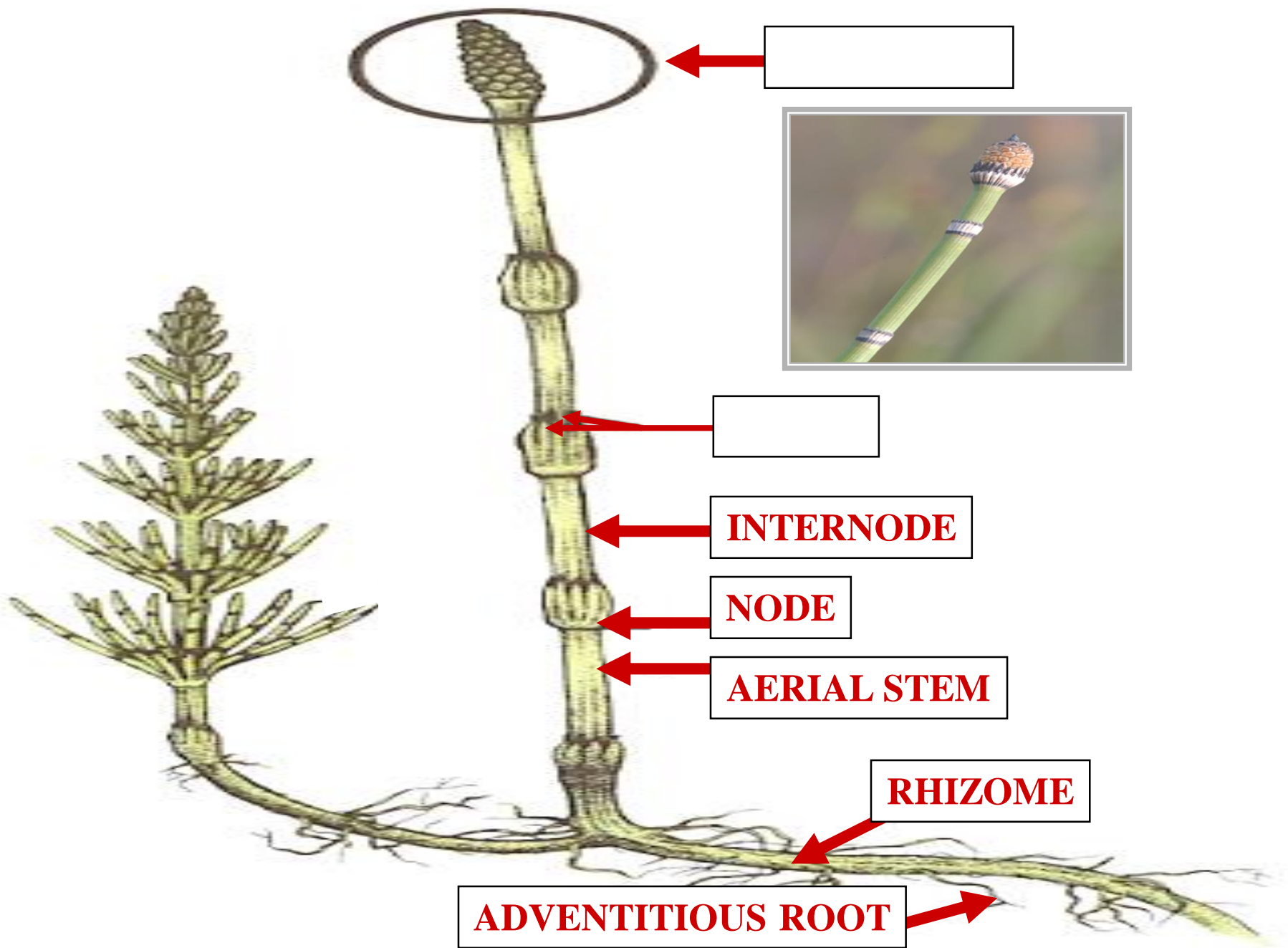
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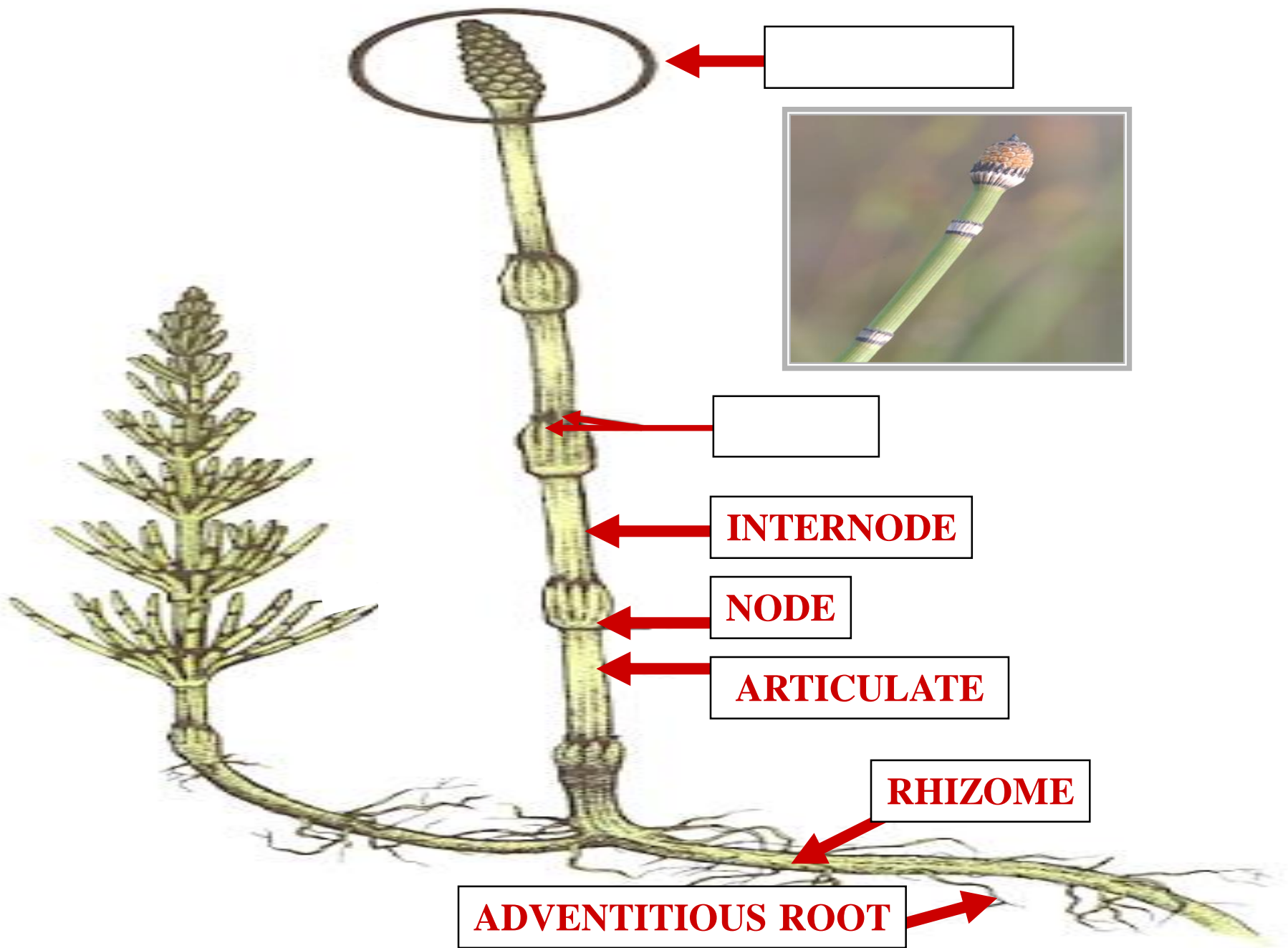
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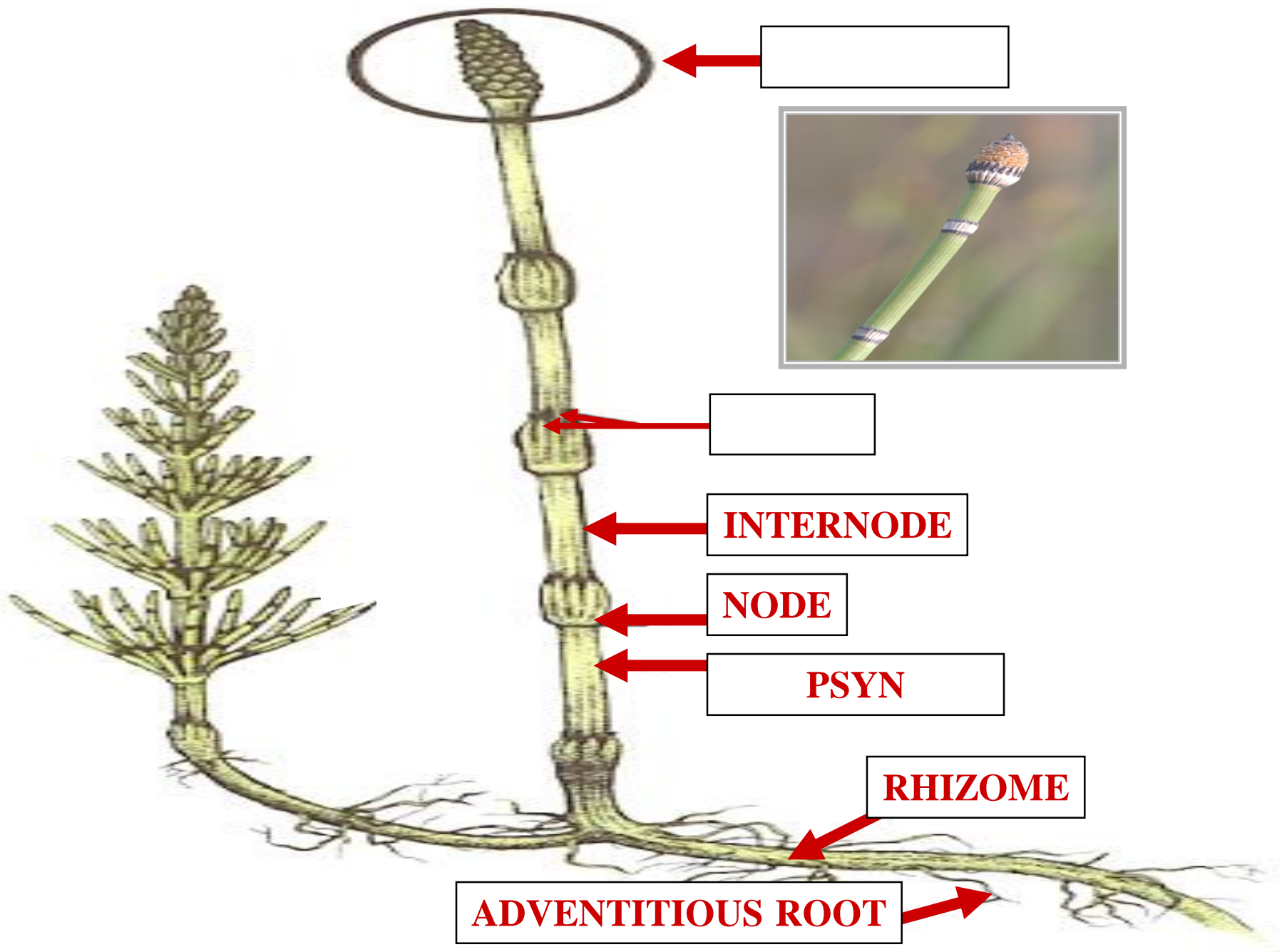
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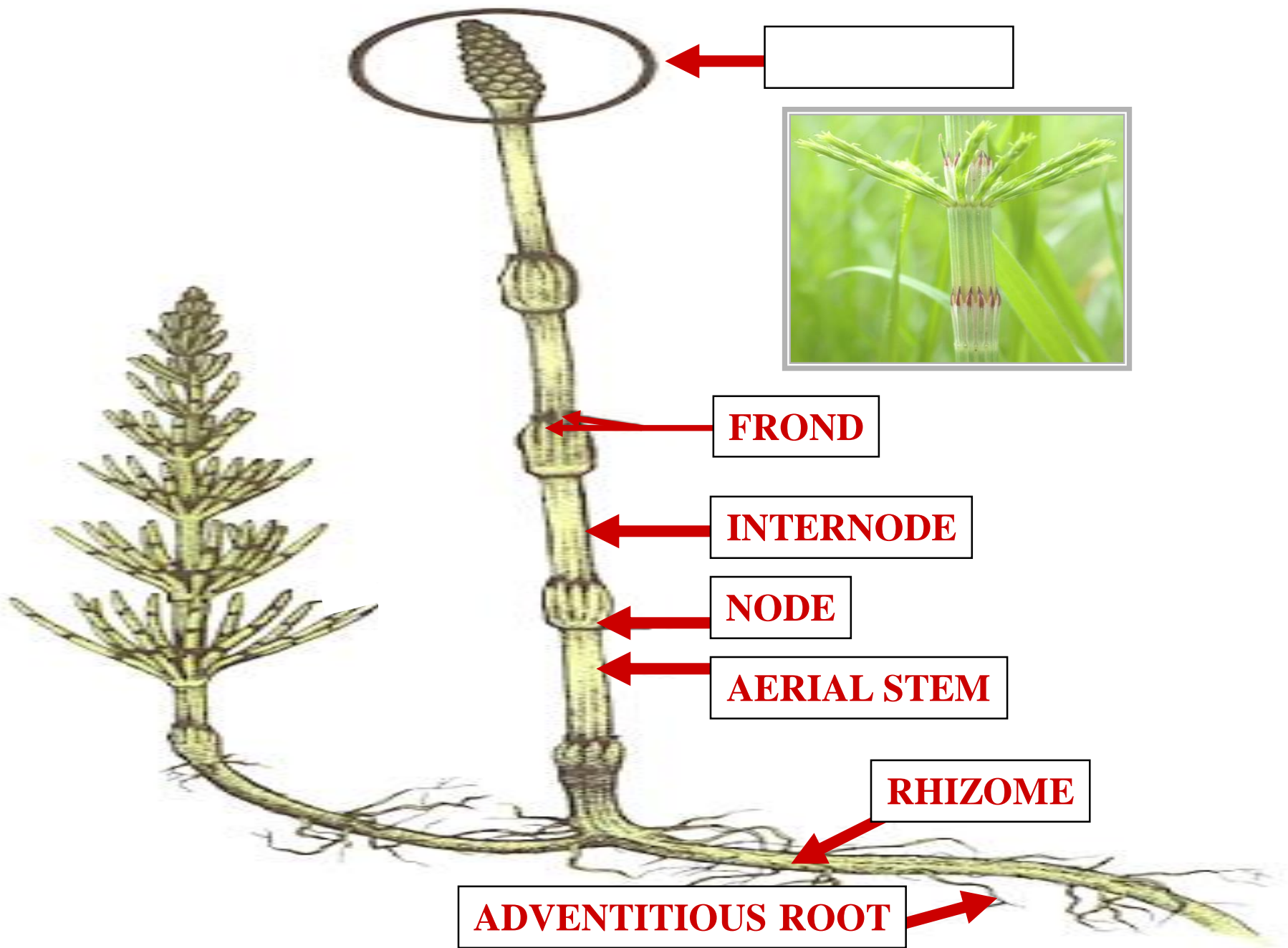
ADVENTITIOUS ROOT











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FROND

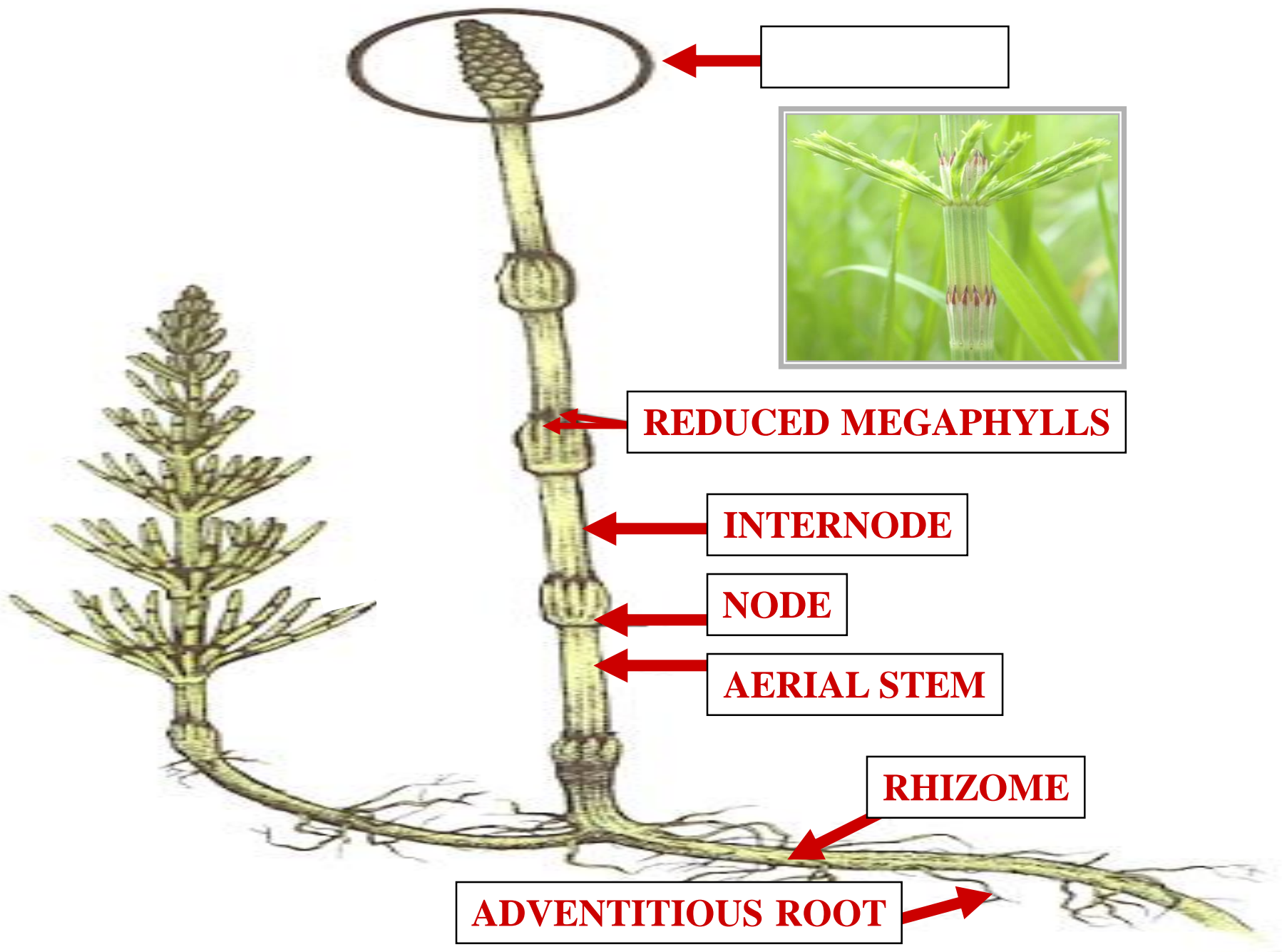
INTERNODE

NODE

AERIAL STEM

RHIZOME

ADVENTITIOUS ROOT



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REDUCED MEGAPHYLLS

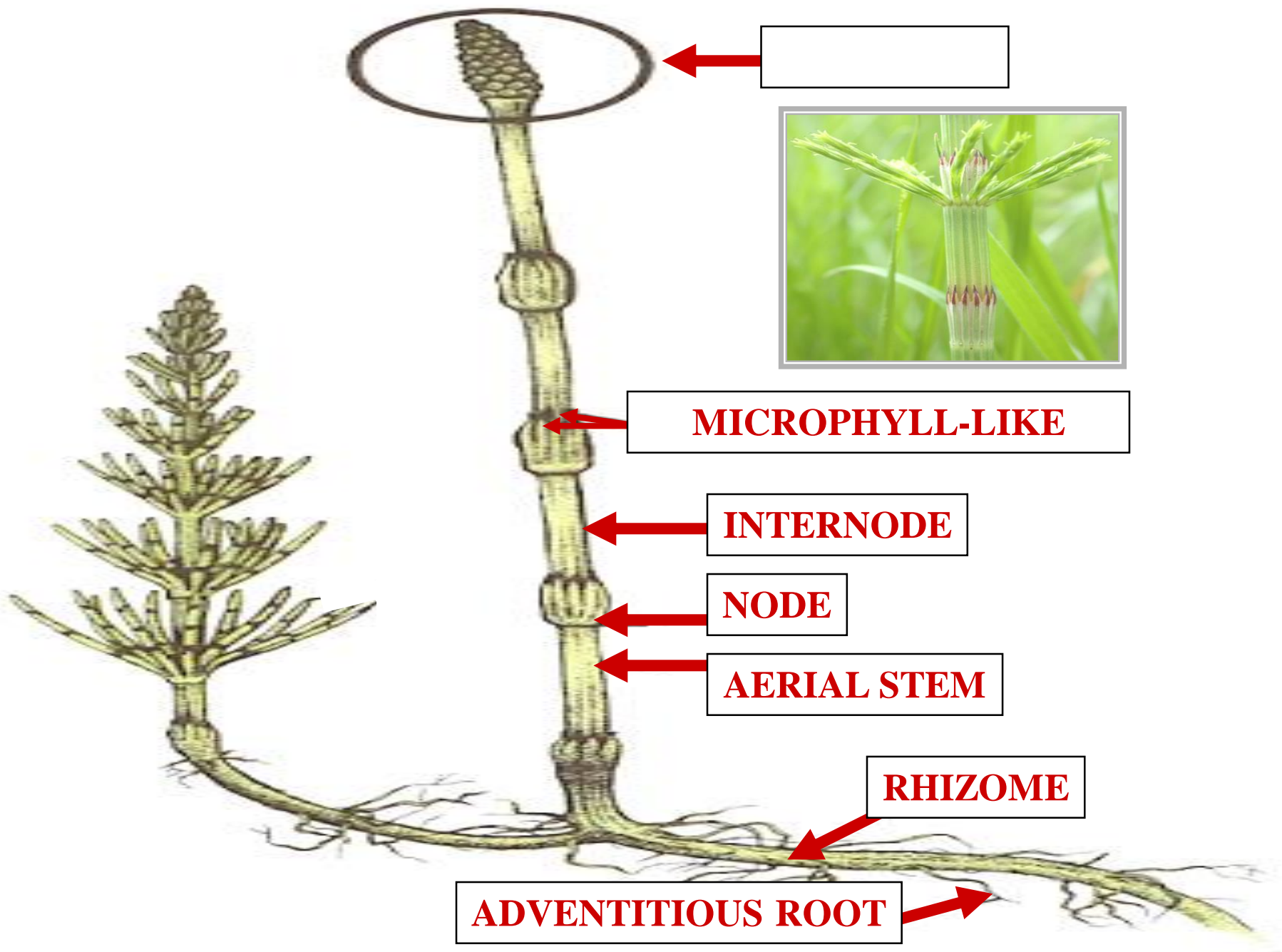
INTERNODE

NODE

AERIAL STEM

RHIZOME

ADVENTITIOUS ROOT



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MICROPHYLL-LIKE

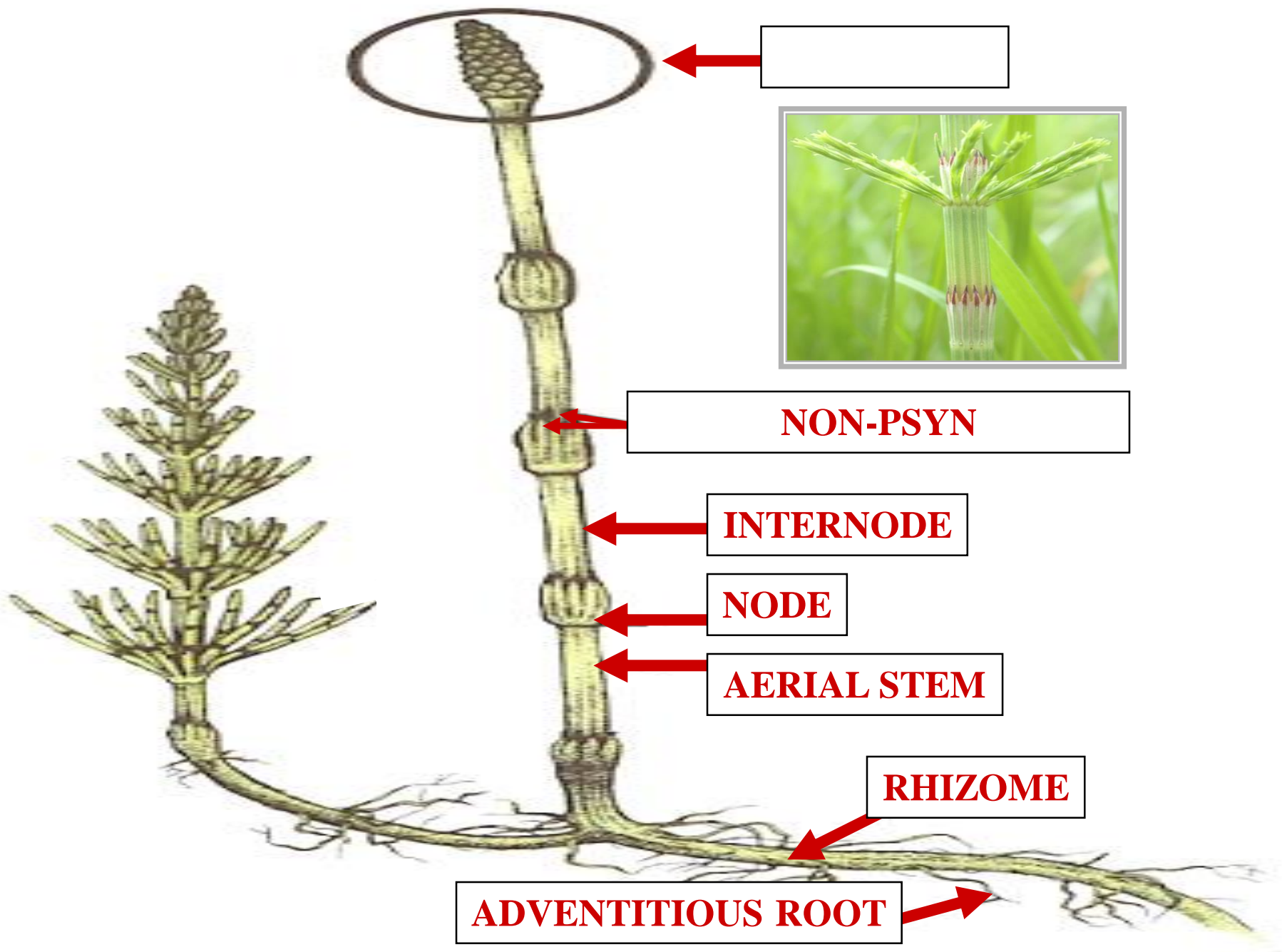
INTERNODE

NODE

AERIAL STEM

RHIZOME

ADVENTITIOUS ROOT



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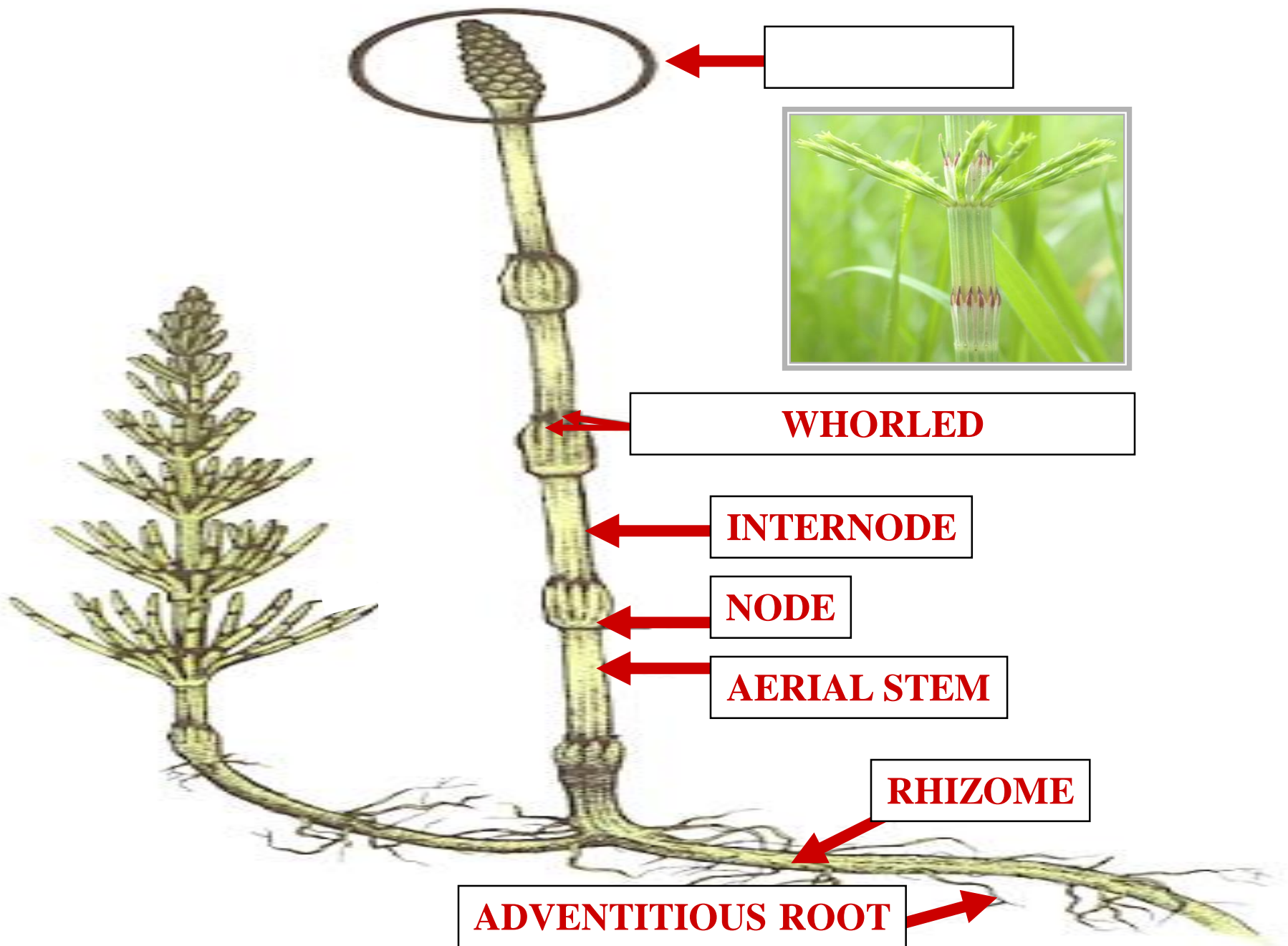
INTERNODE

NODE

AERIAL STEM

RHIZOME

ADVENTITIOUS ROOT



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WHORLED

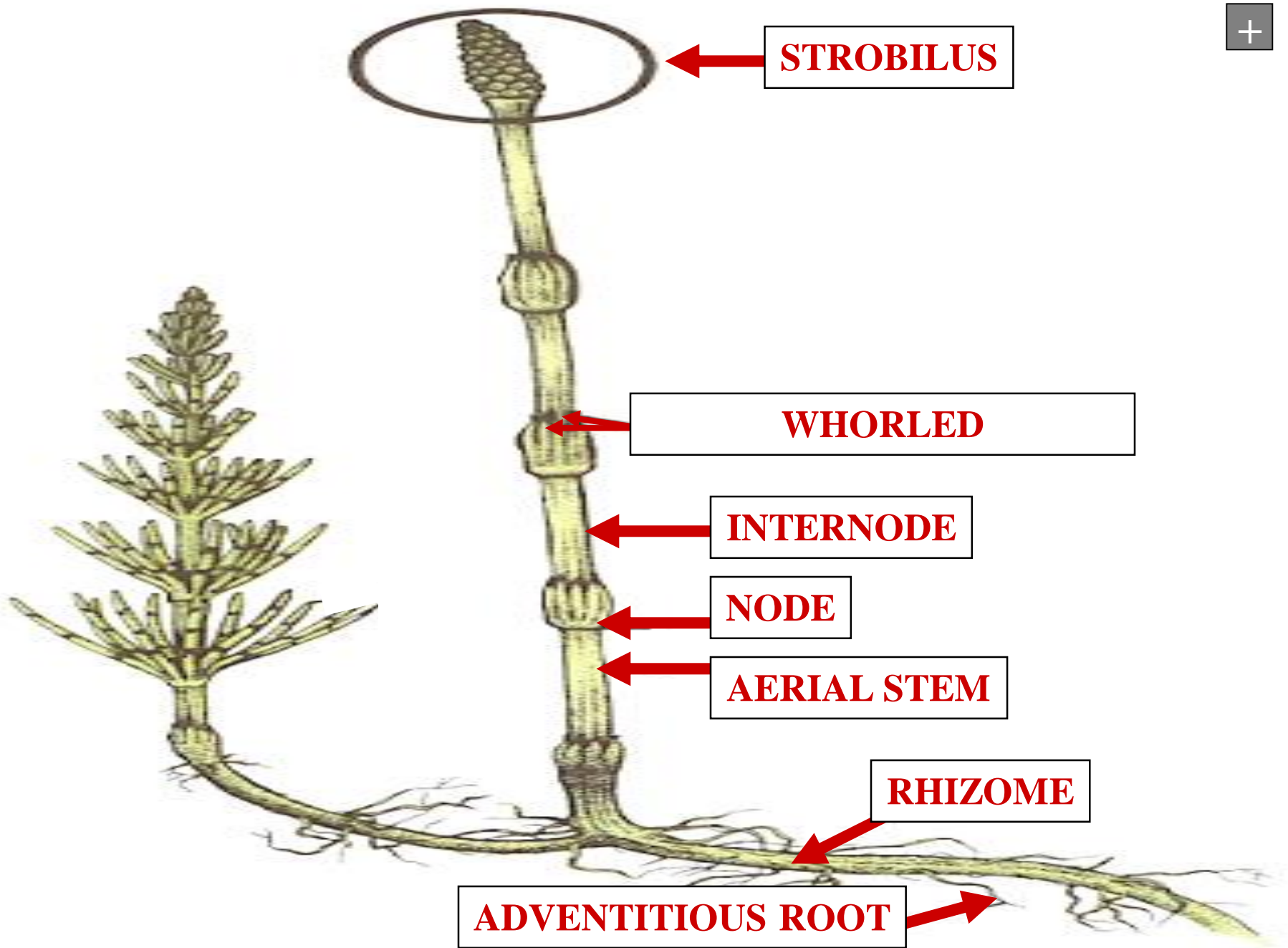
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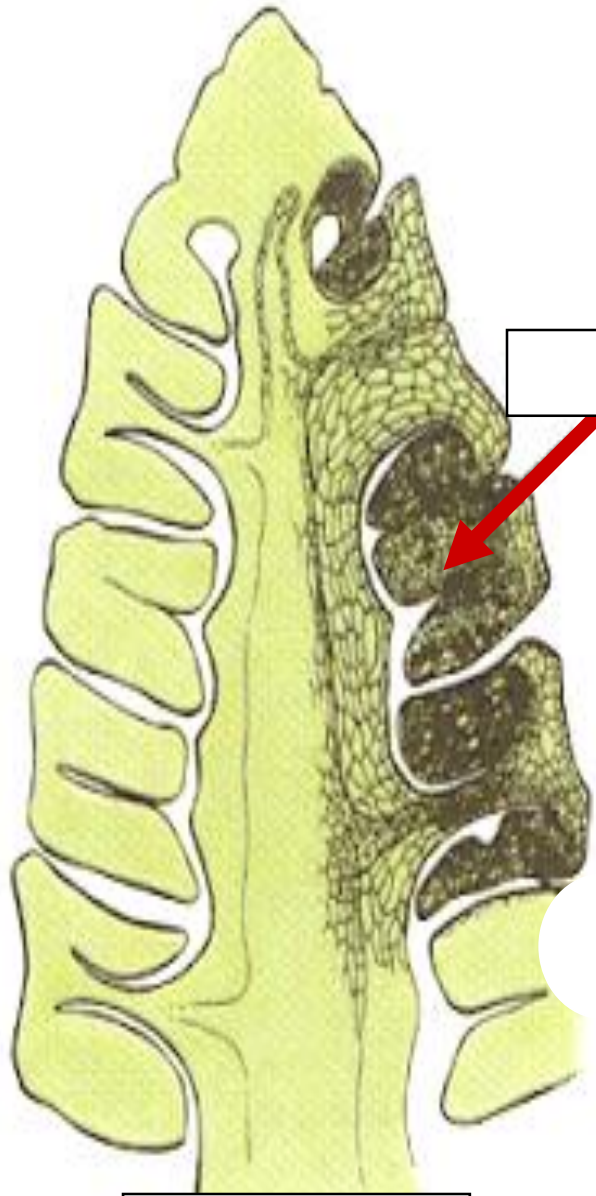
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AERIAL STEM

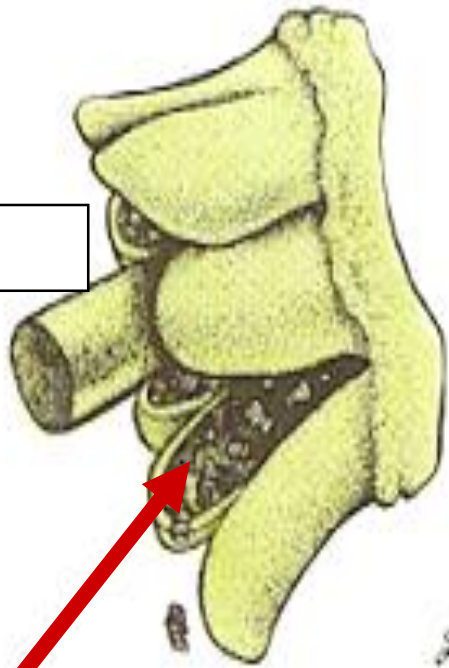
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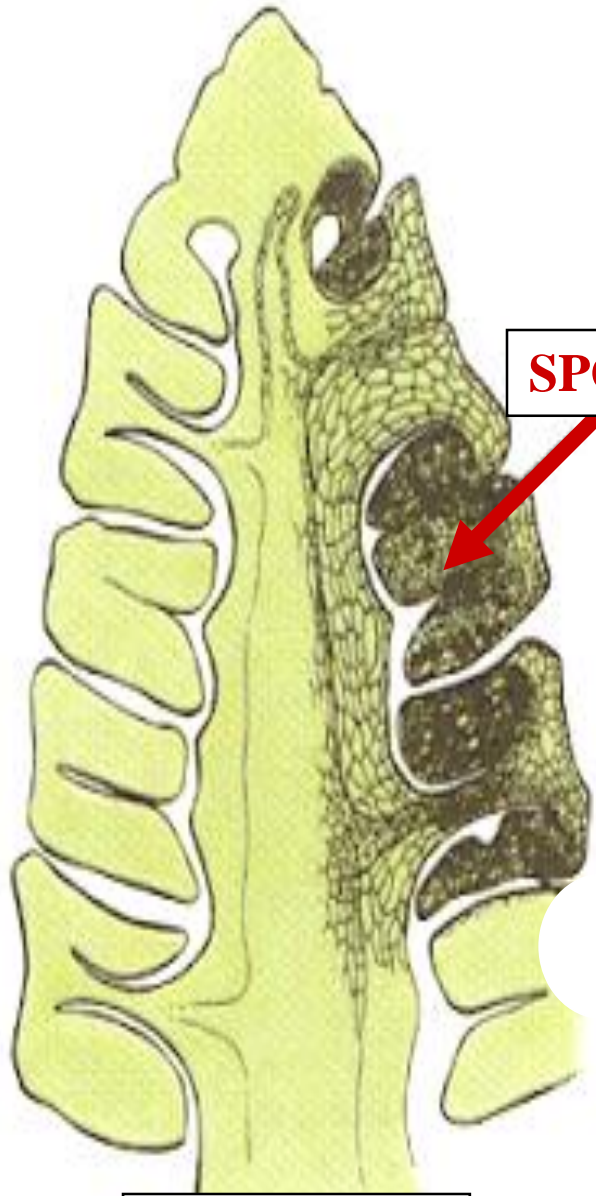
ADVENTITIOUS ROOT





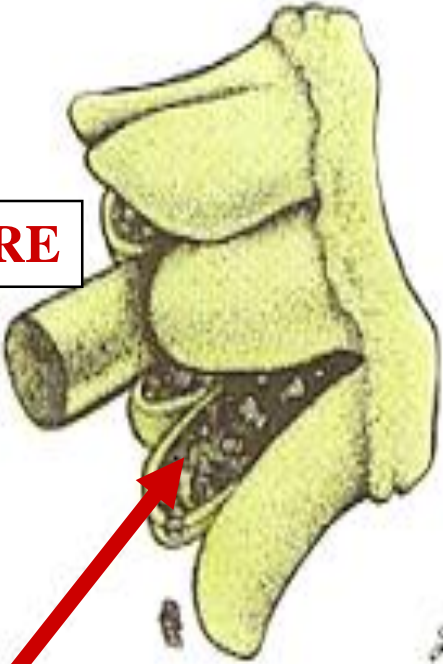
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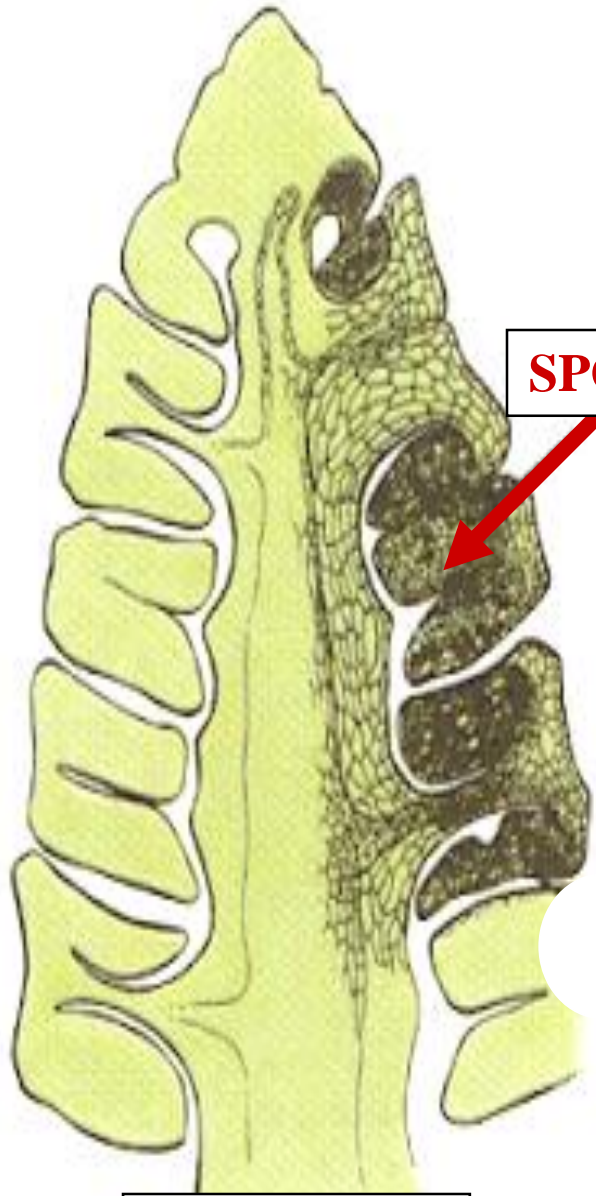




STROBILUS

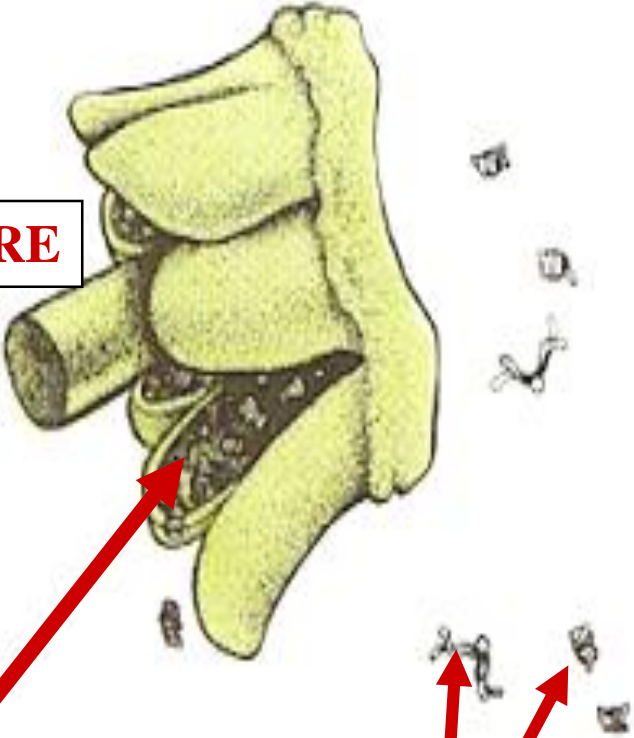
SPORANGIOPHORE





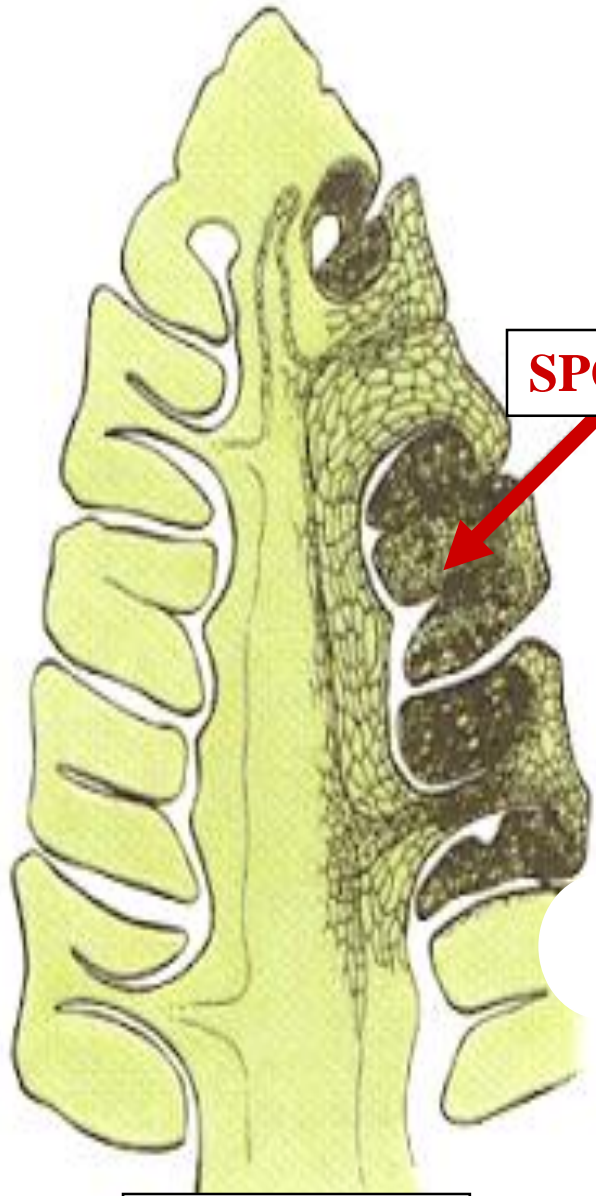
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SPORANGIOPHORE



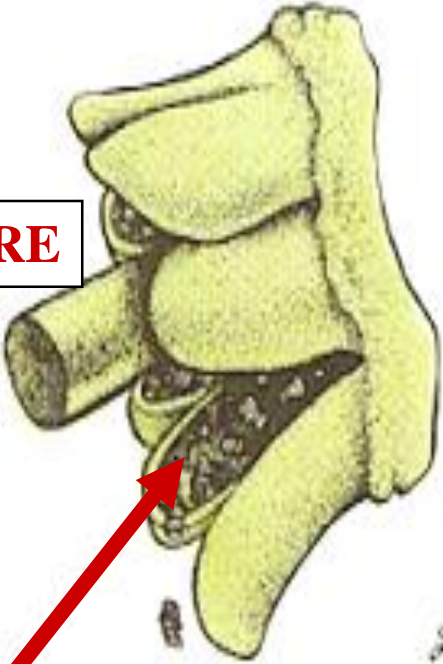
EUSPORANGIUM





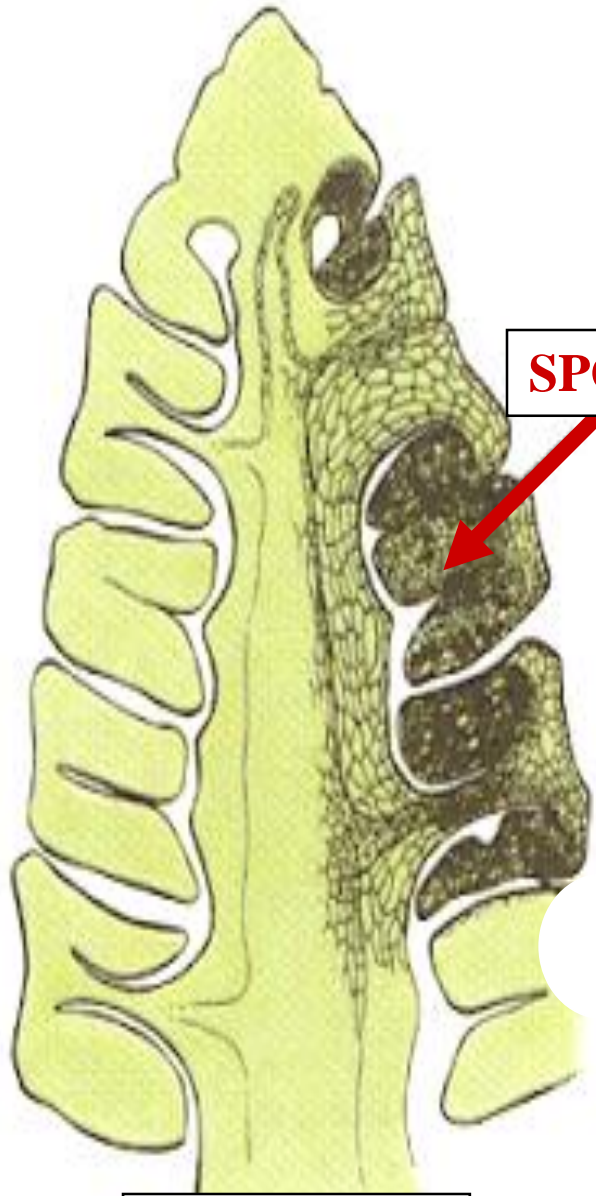
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SPORANGIOPHORE



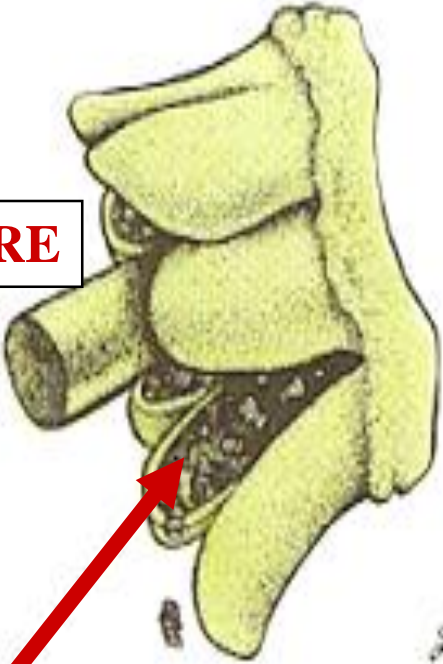
CAULINE





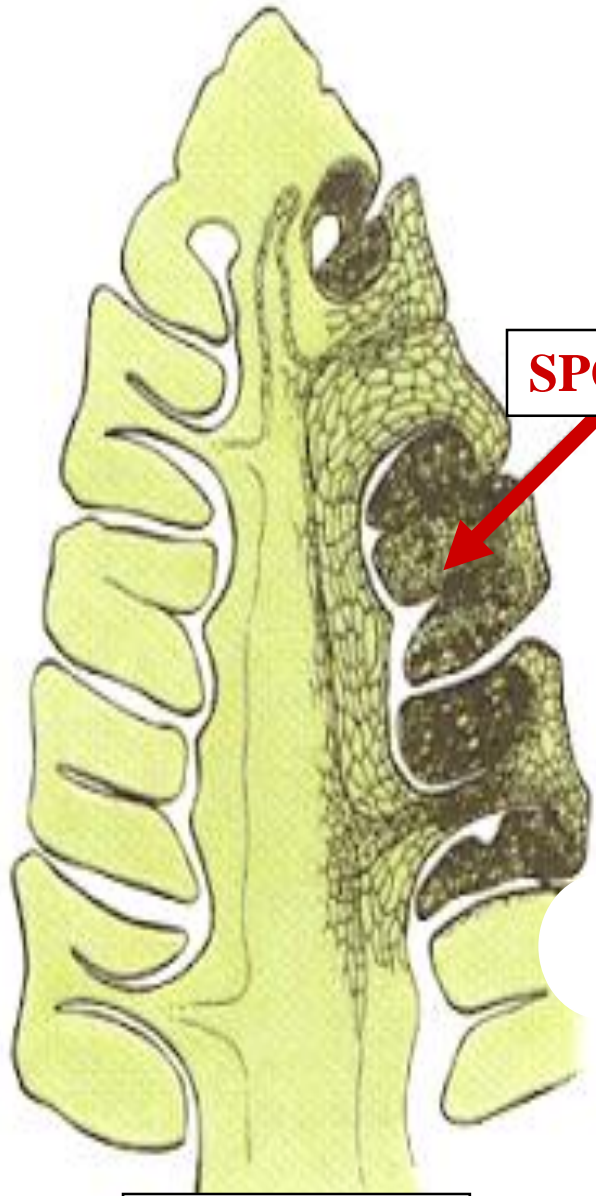
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SPORANGIOPHORE



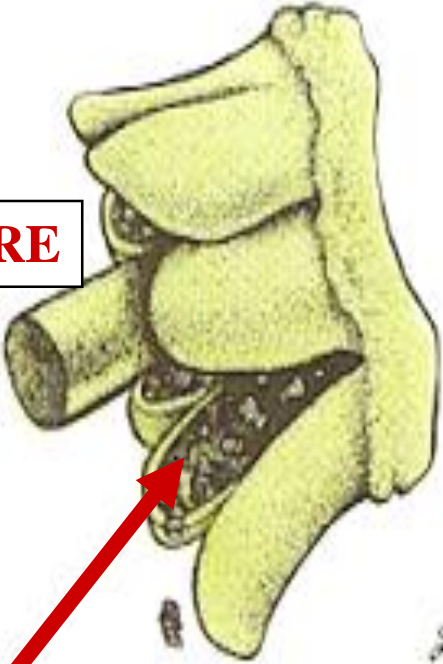
TAPETUM





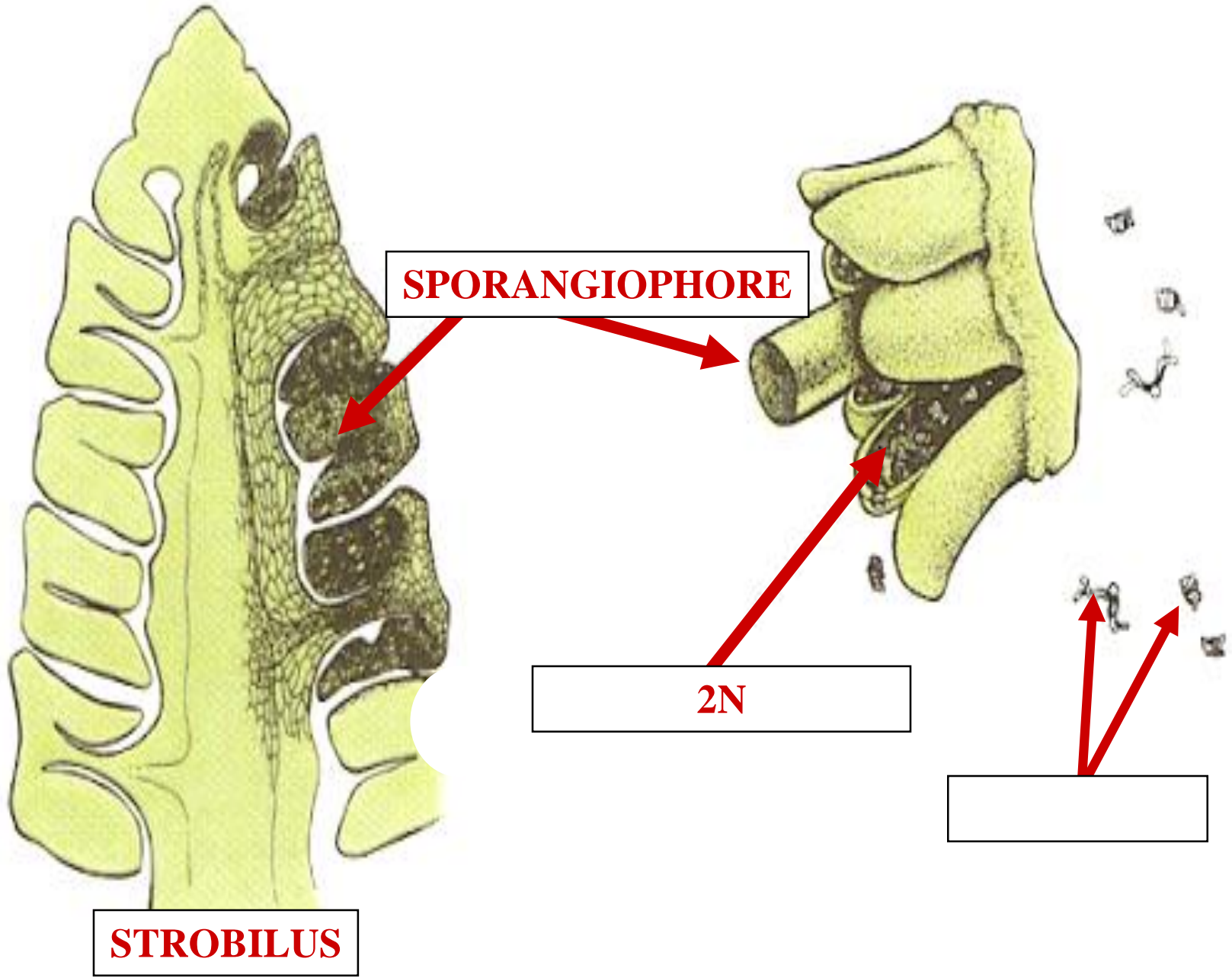
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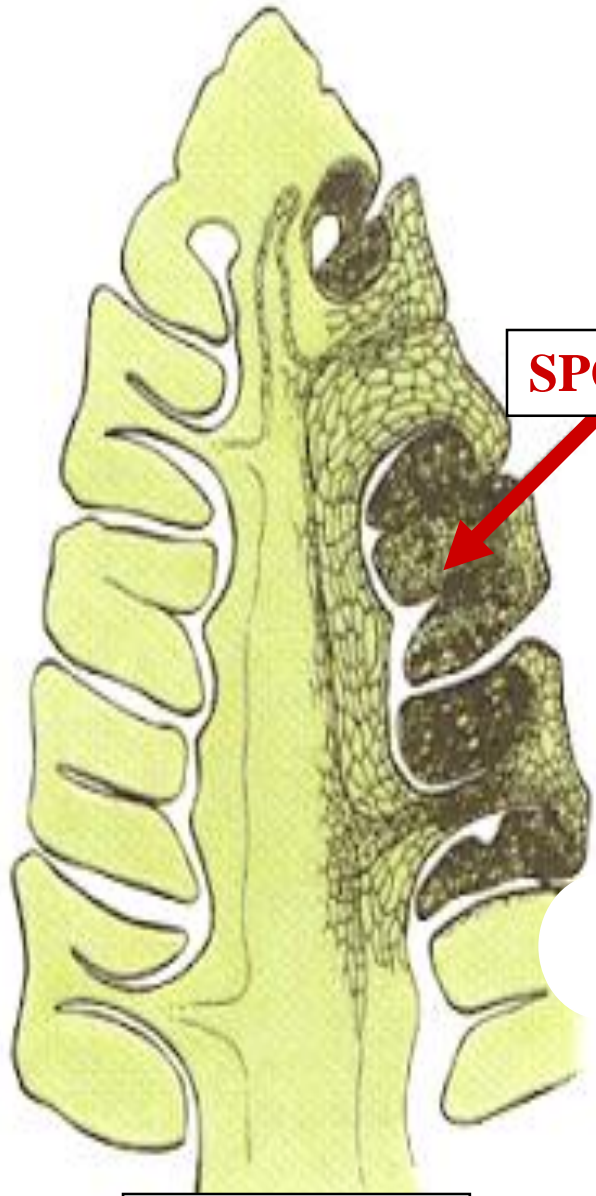
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SPOROCYTES

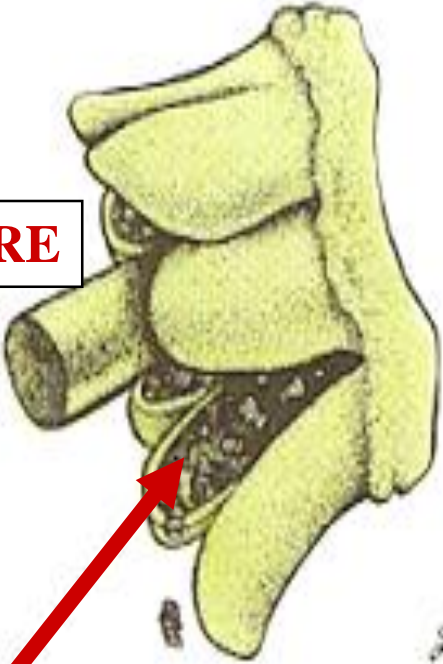






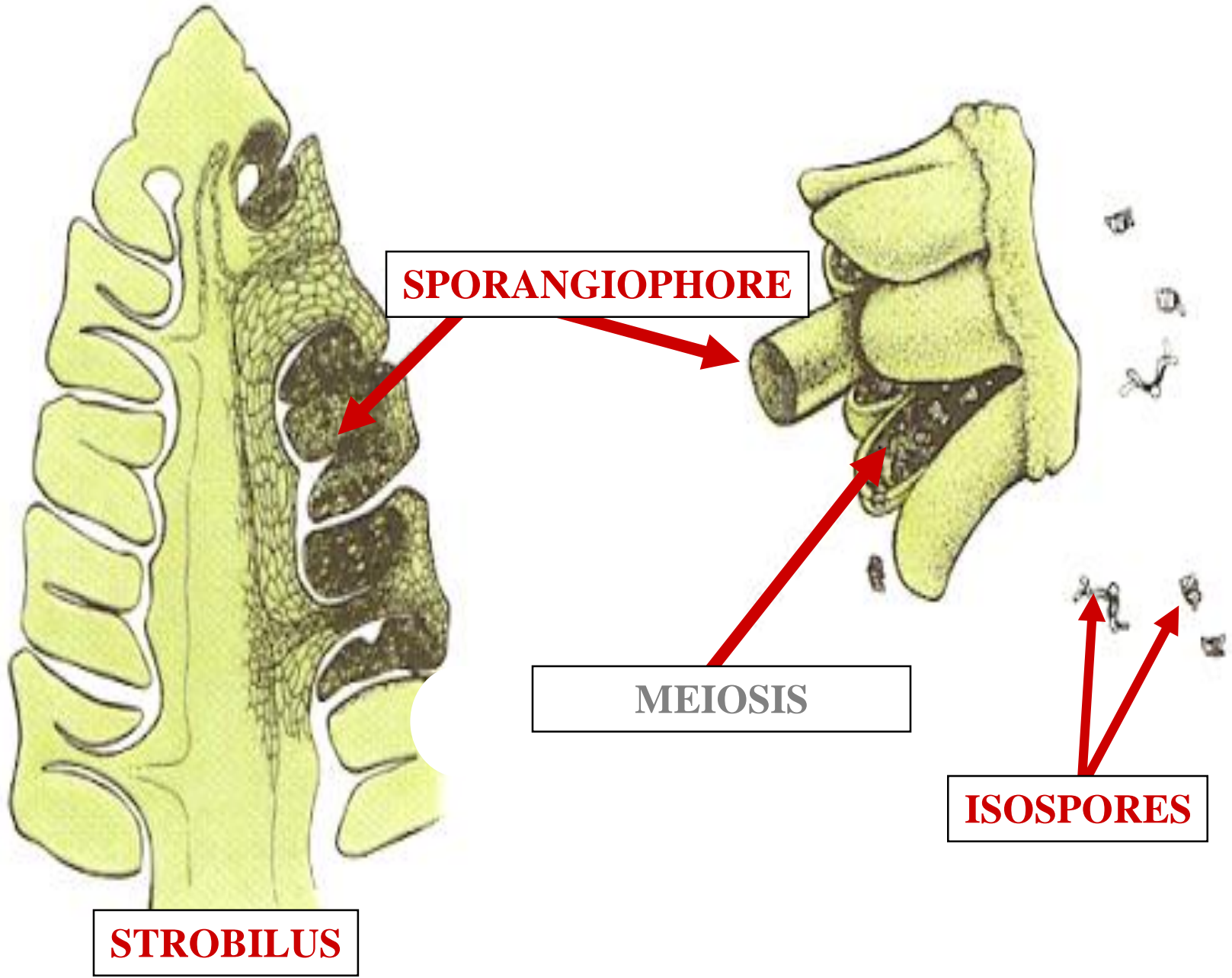
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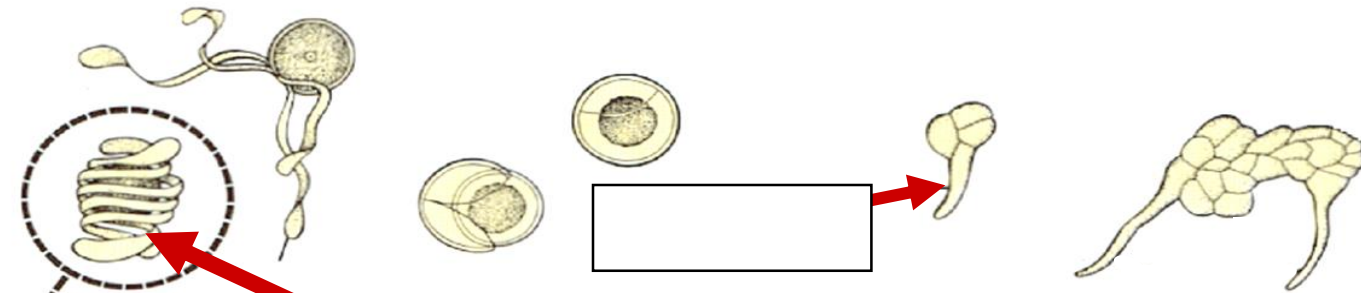
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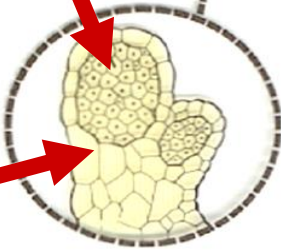
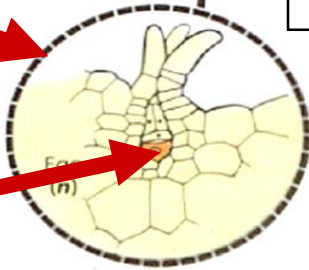
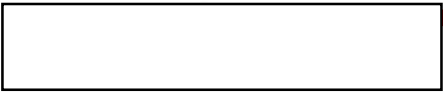
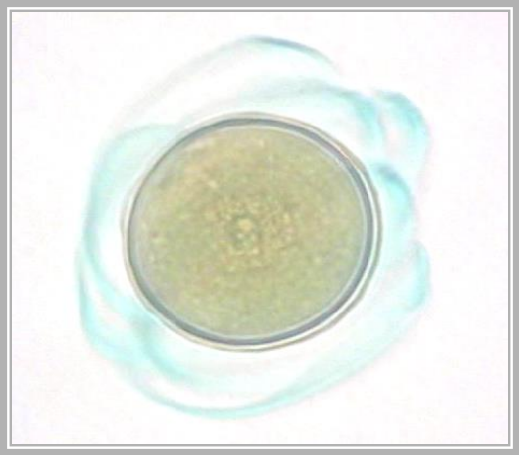
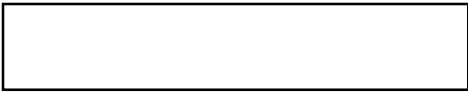
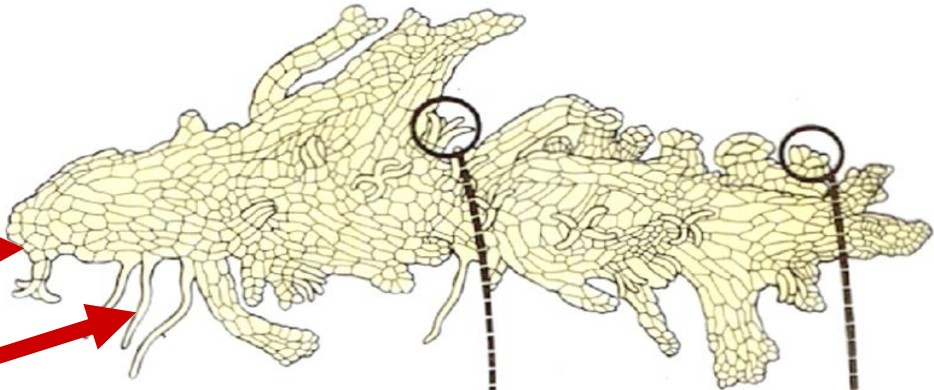
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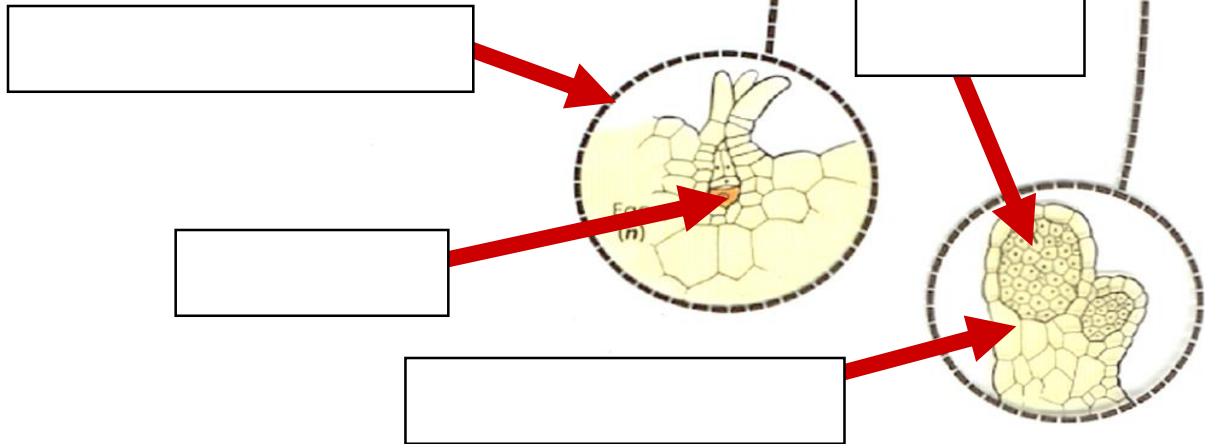
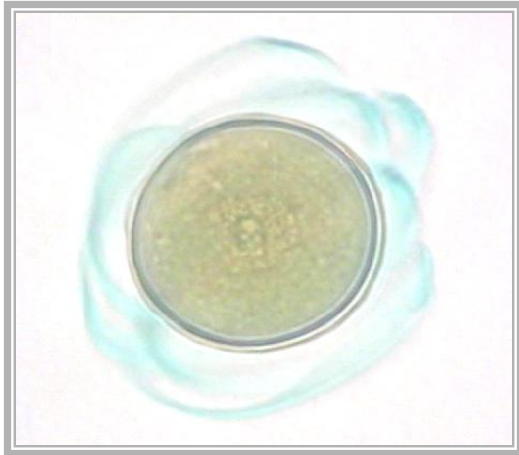
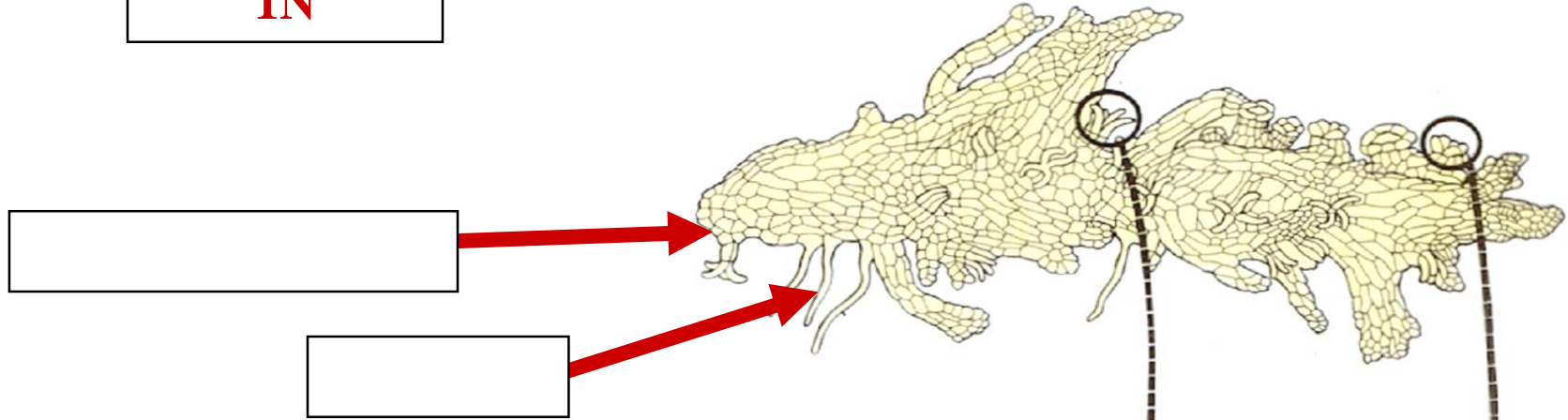
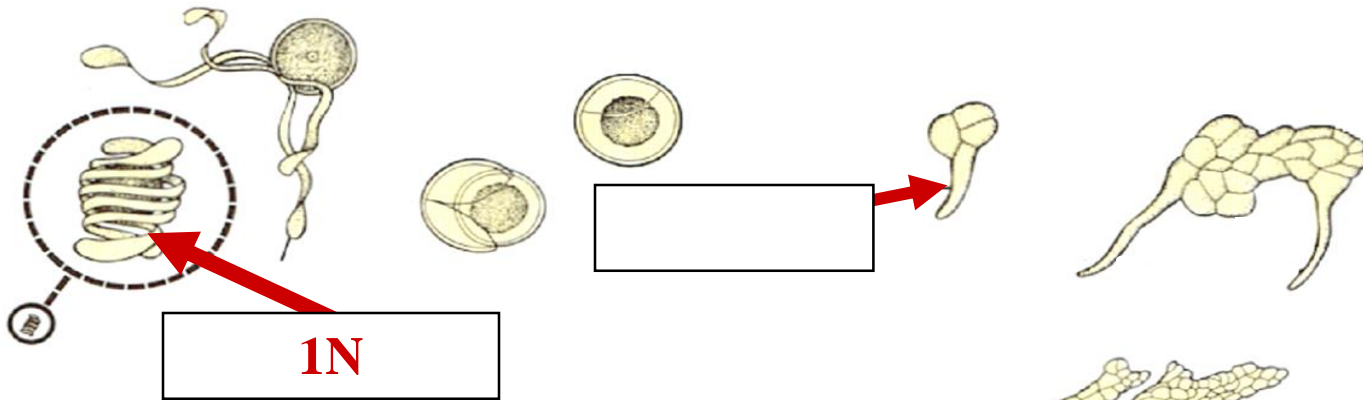


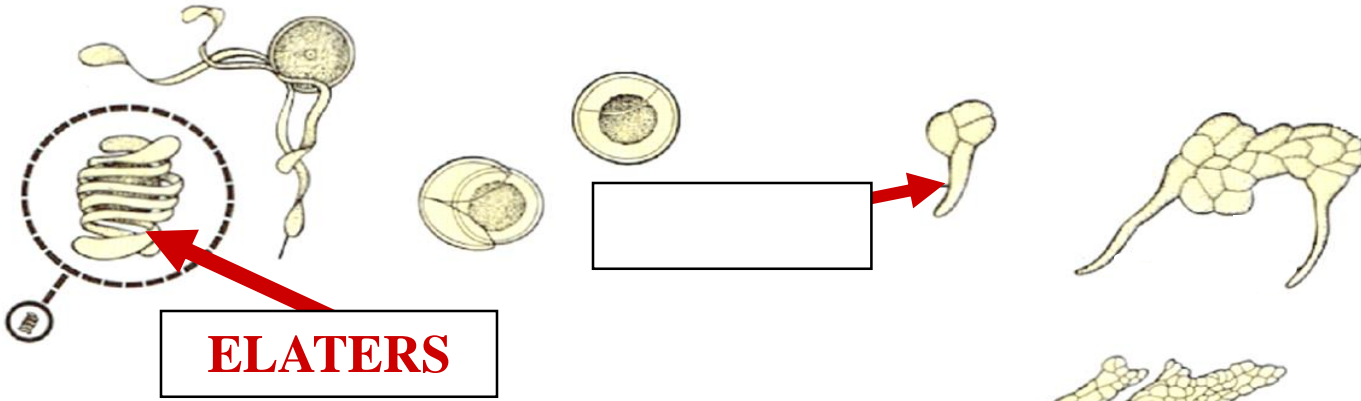




ISOSPORE

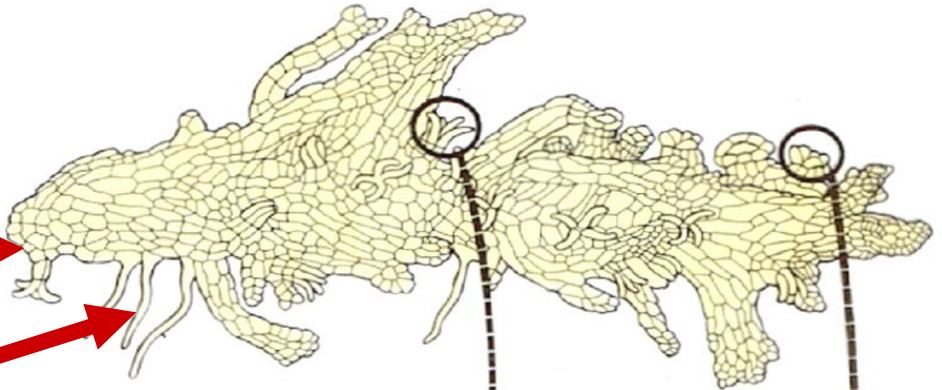






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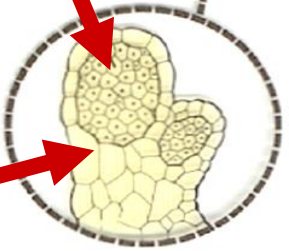
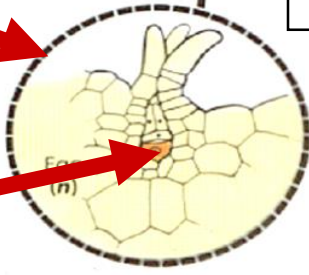
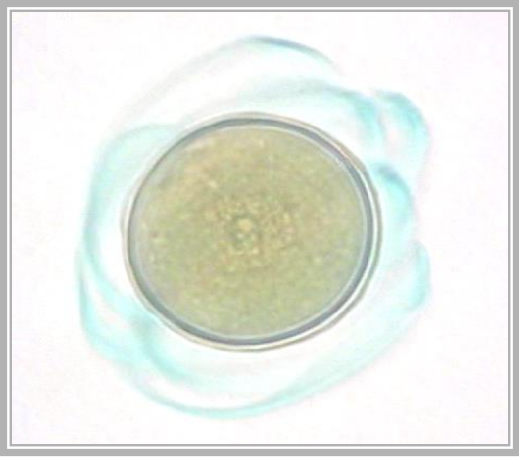


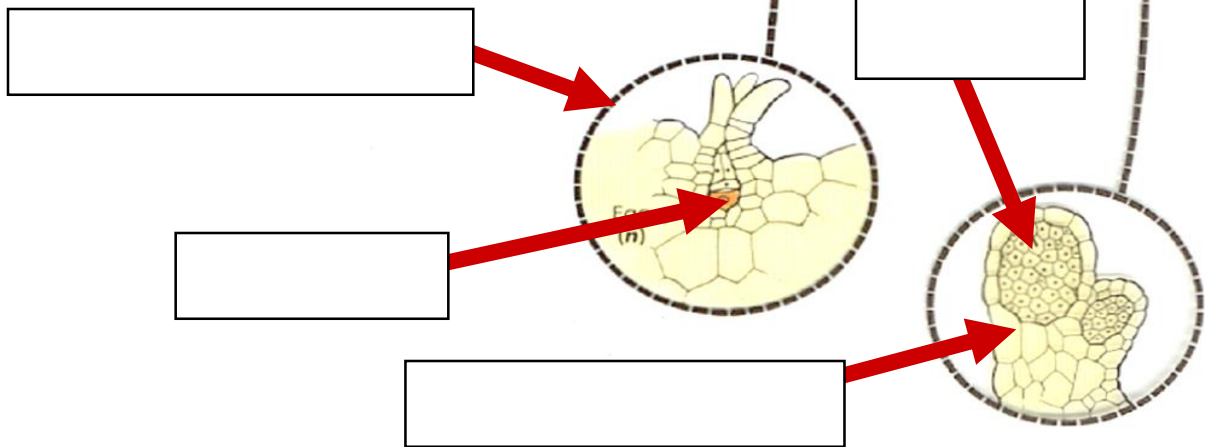
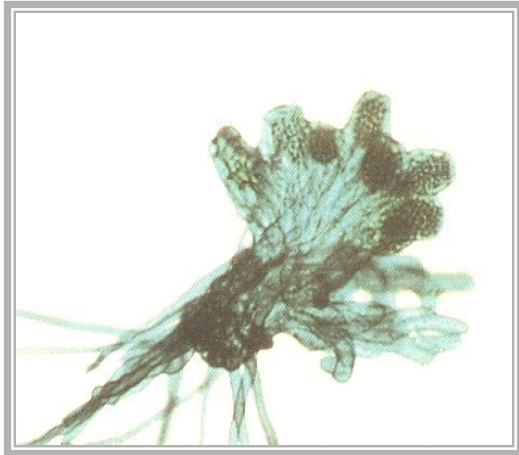
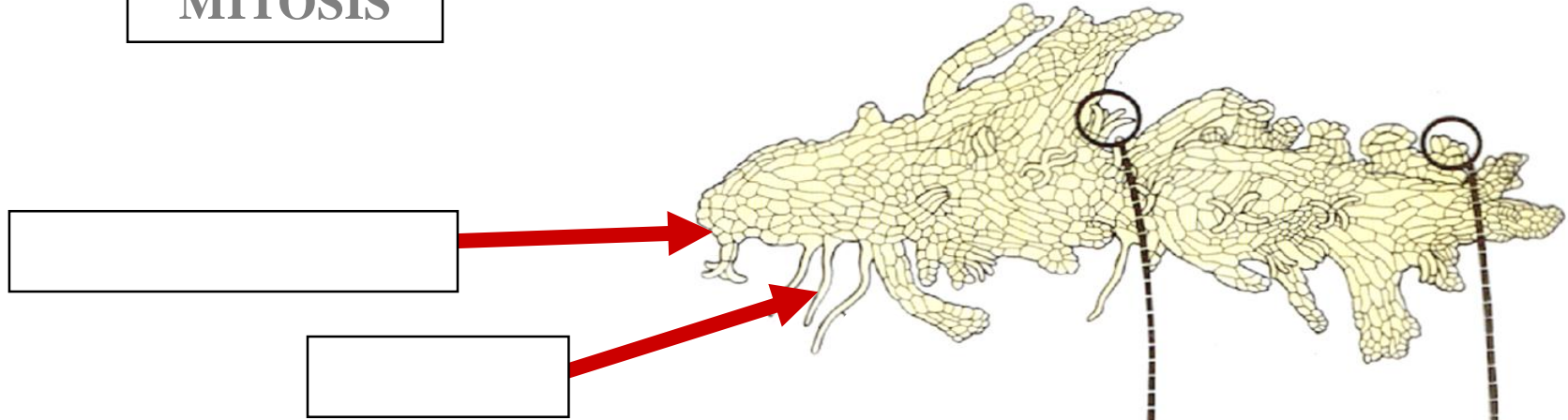
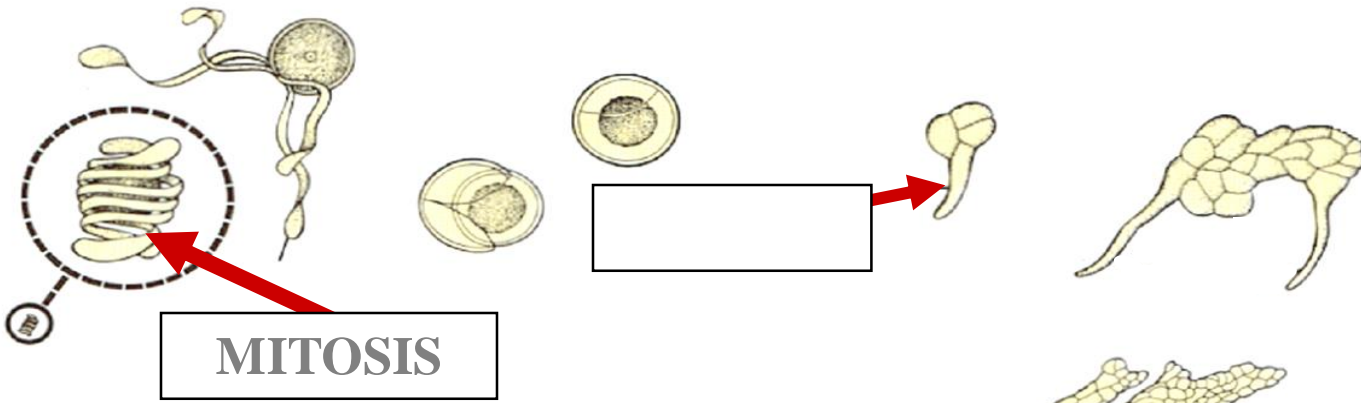
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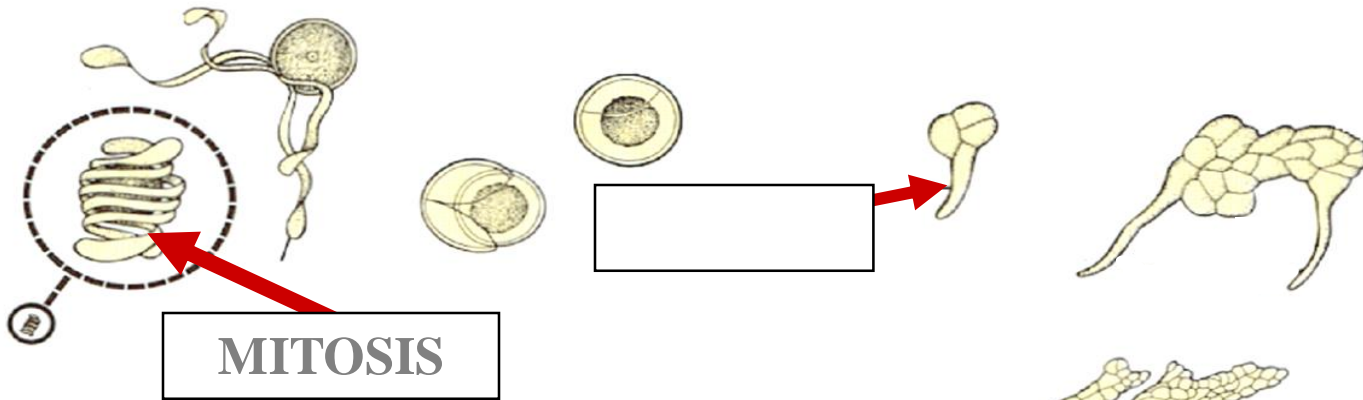
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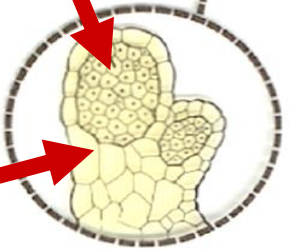
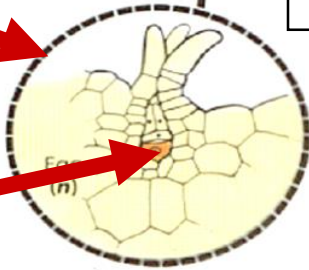
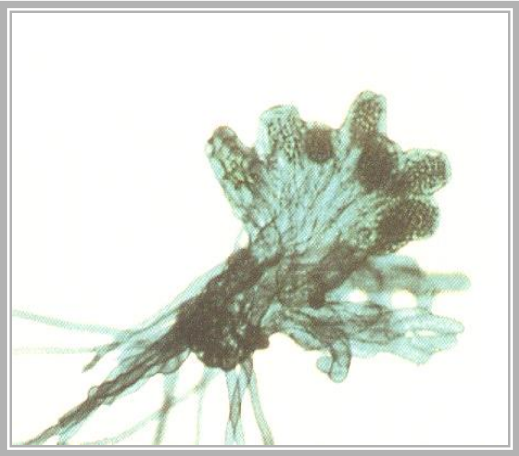
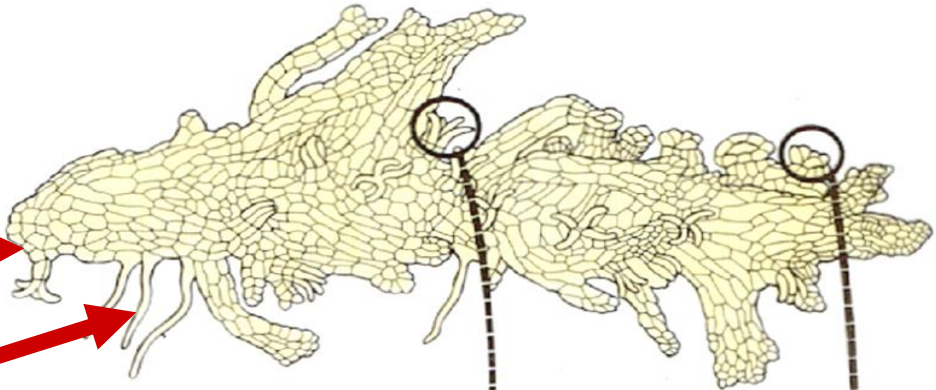
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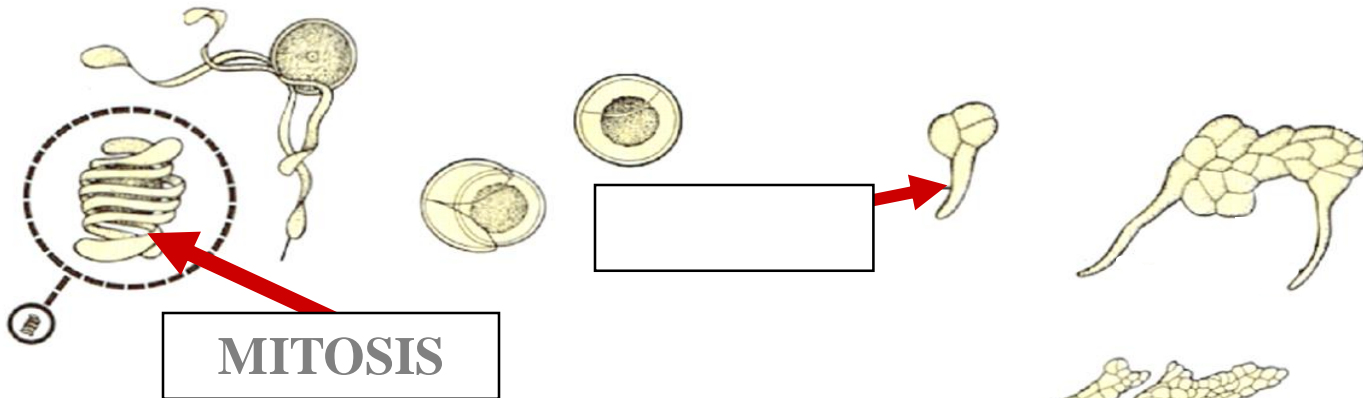






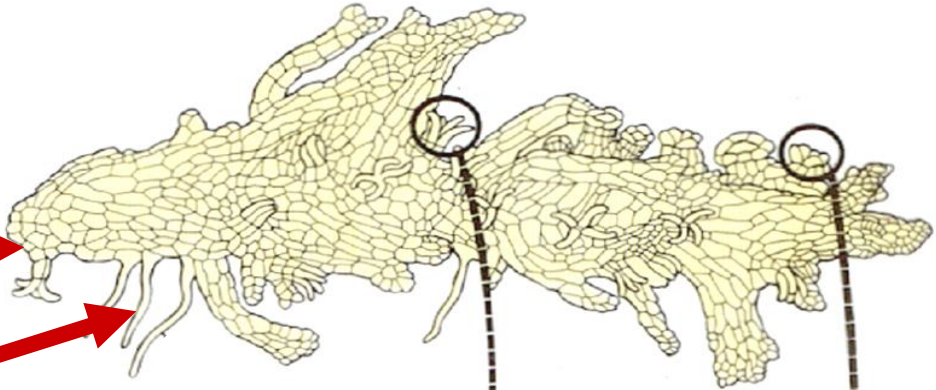
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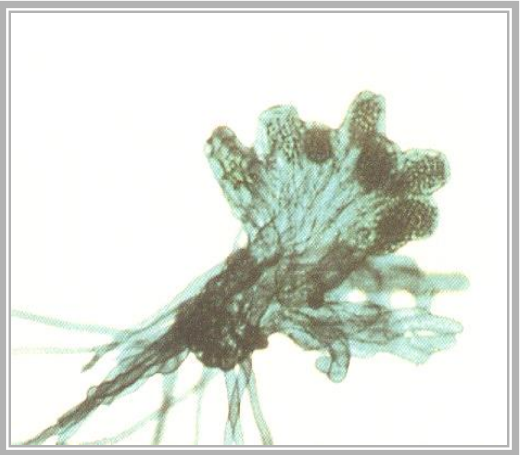
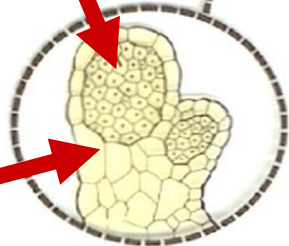


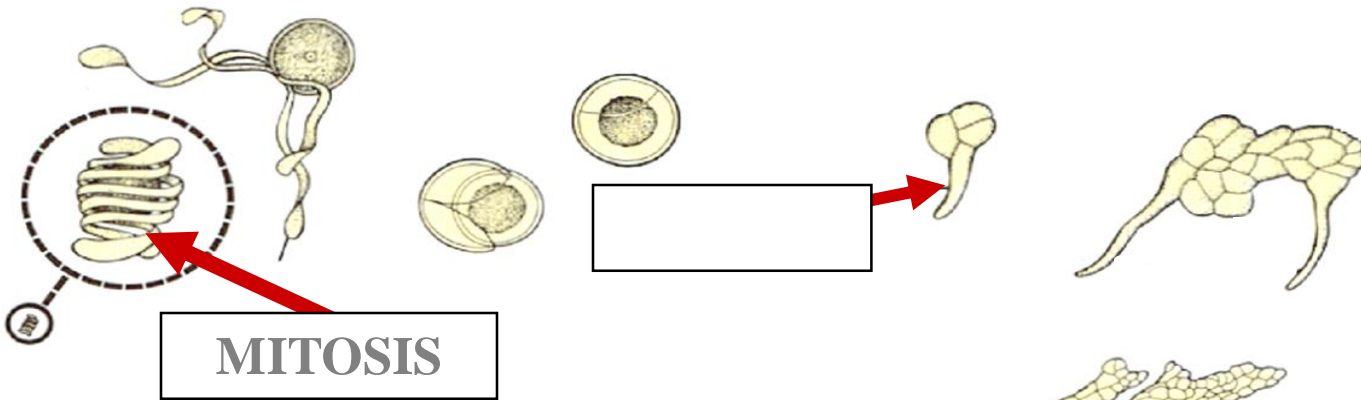
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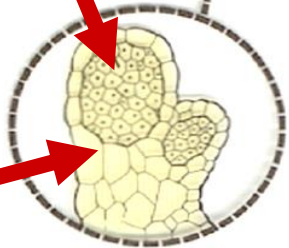
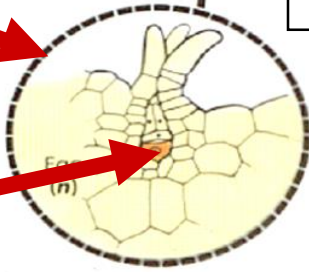
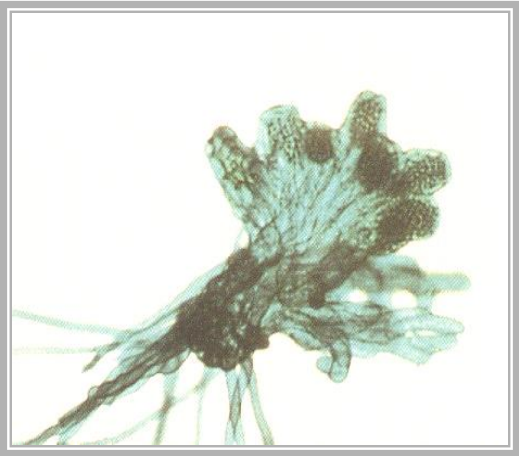
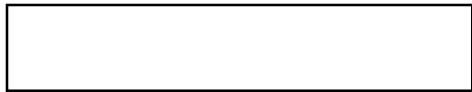
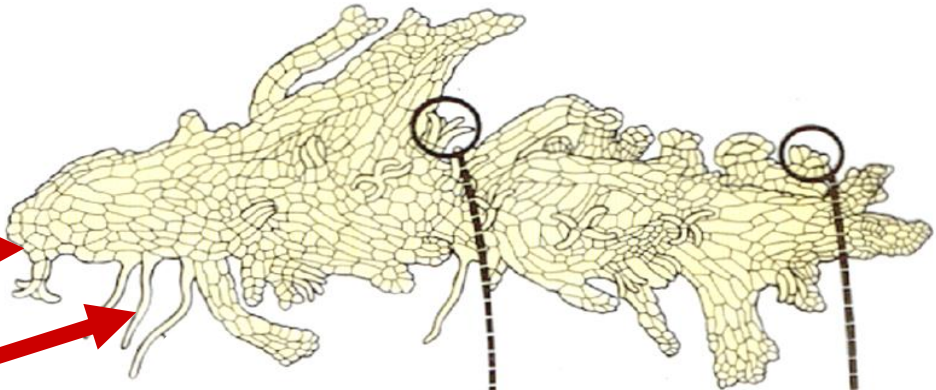
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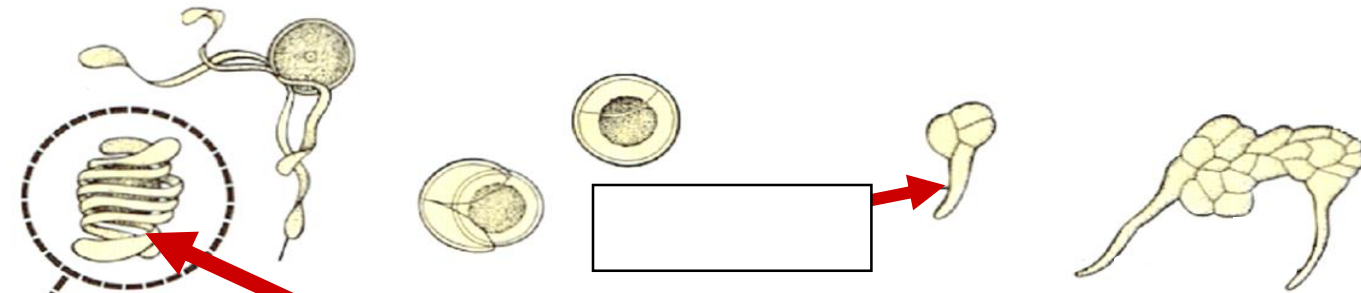
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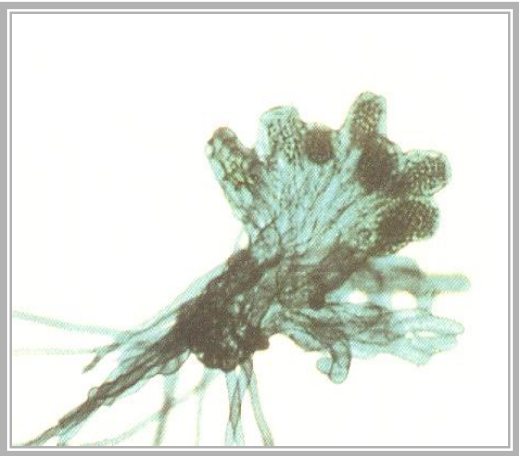
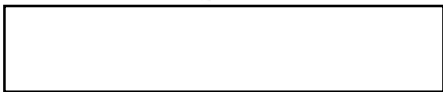
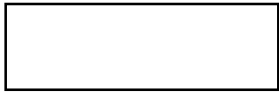
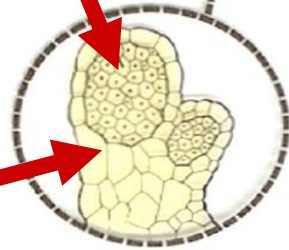
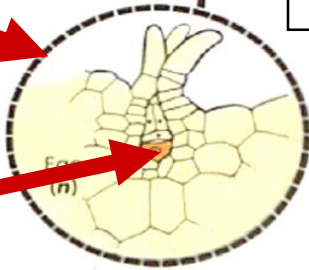
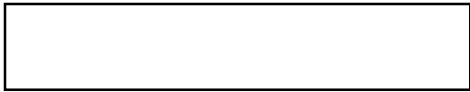
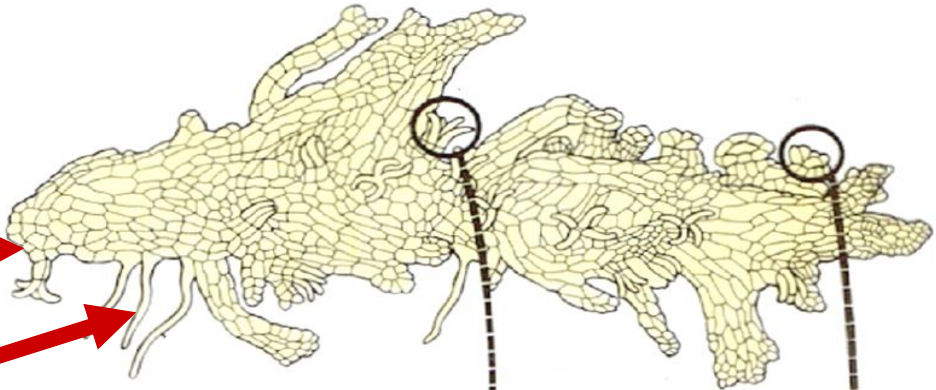
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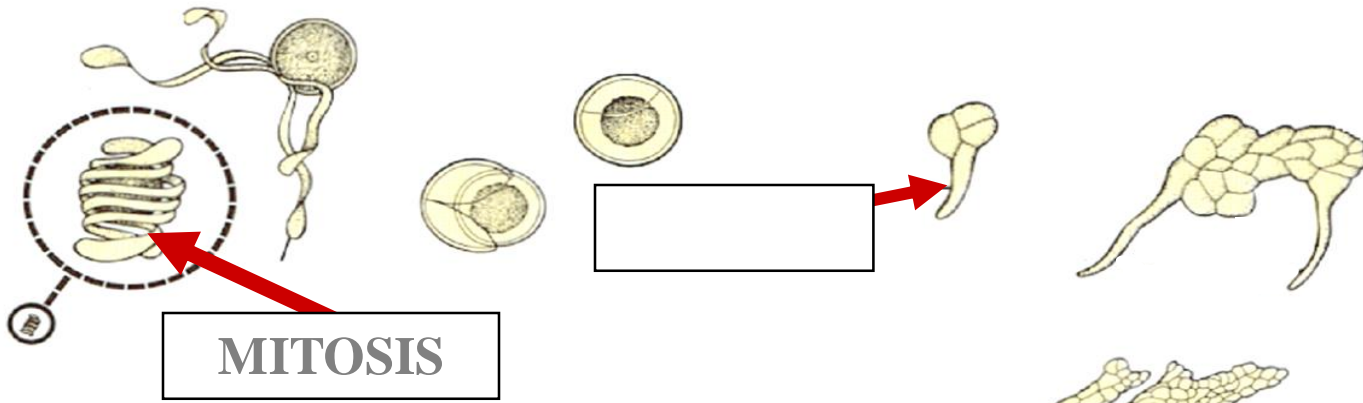




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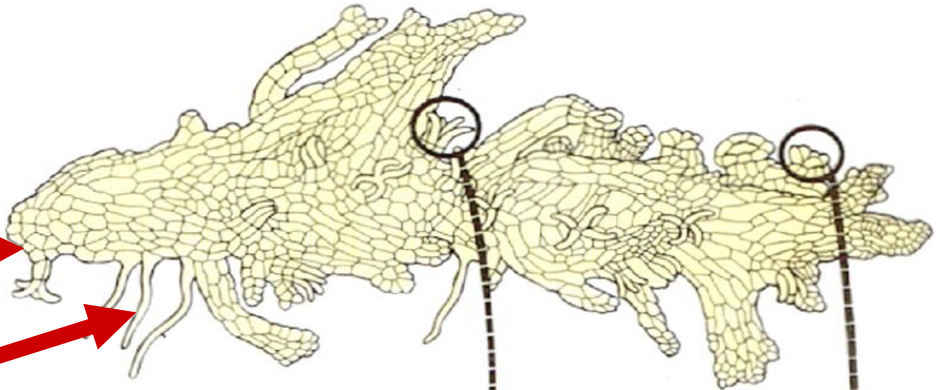
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PSYN

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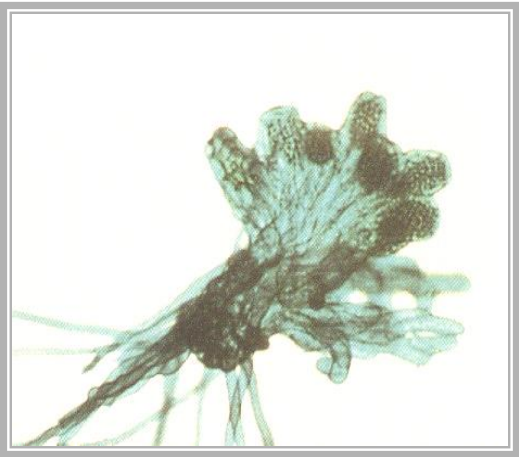
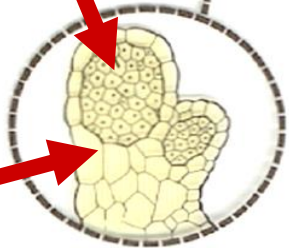
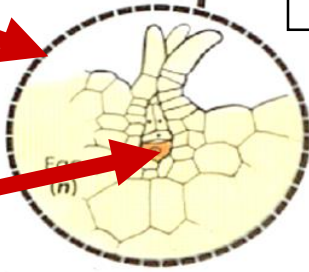


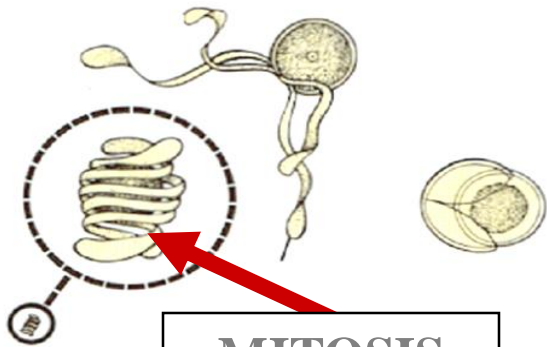
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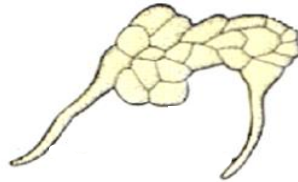




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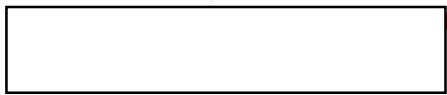
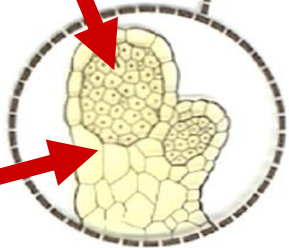
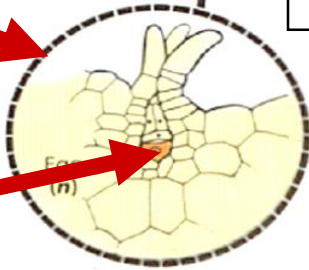
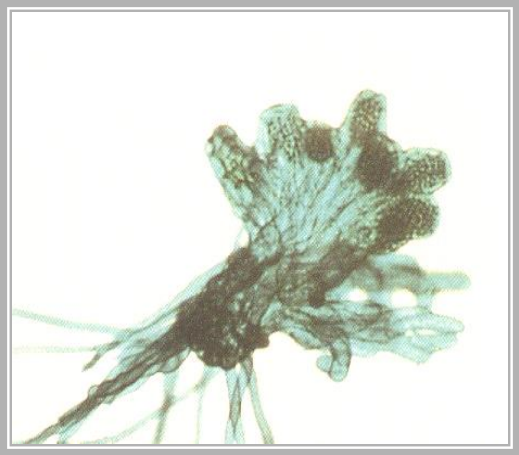
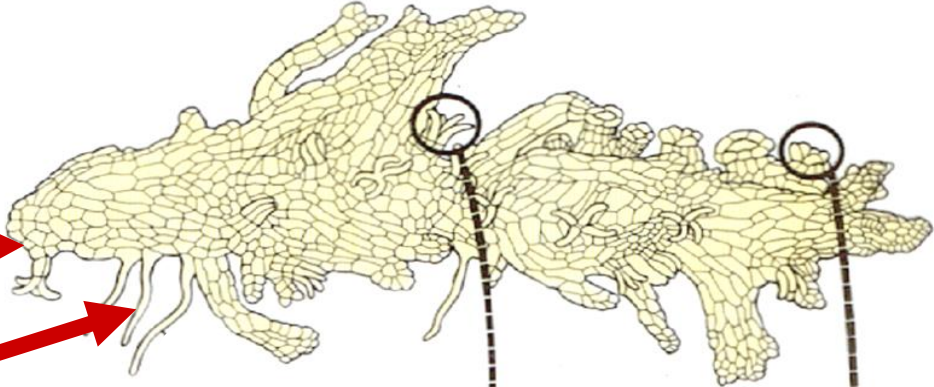


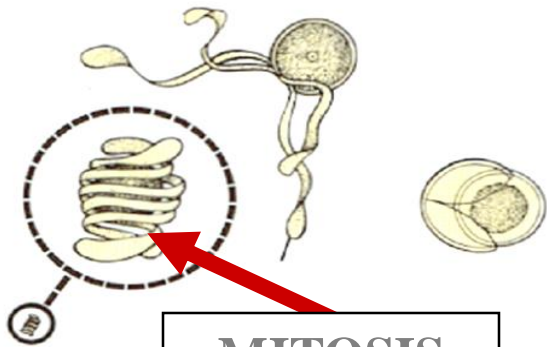
RHIZOID



PSYN

RHIZOID





MITOSIS

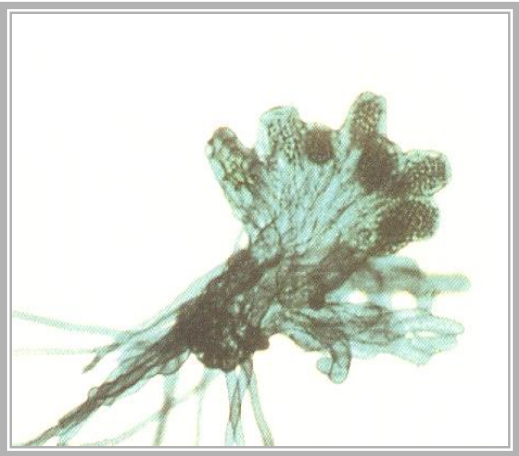
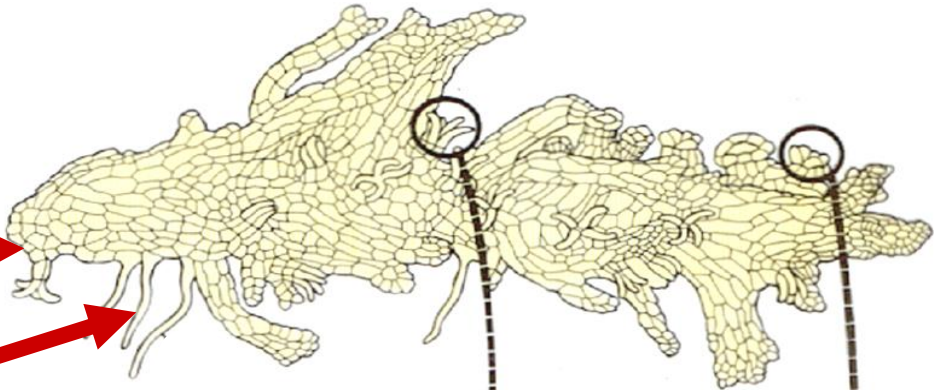


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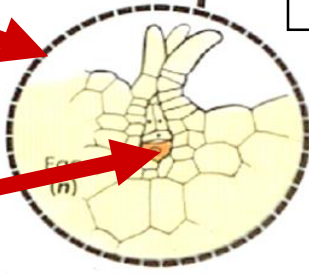
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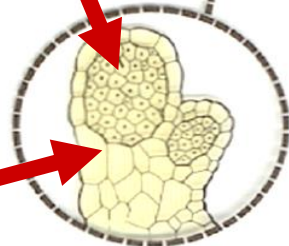


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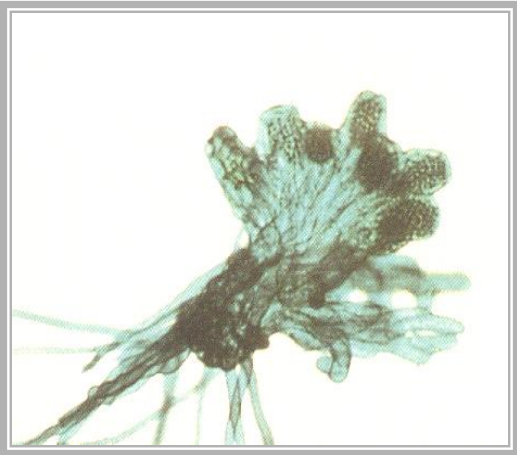
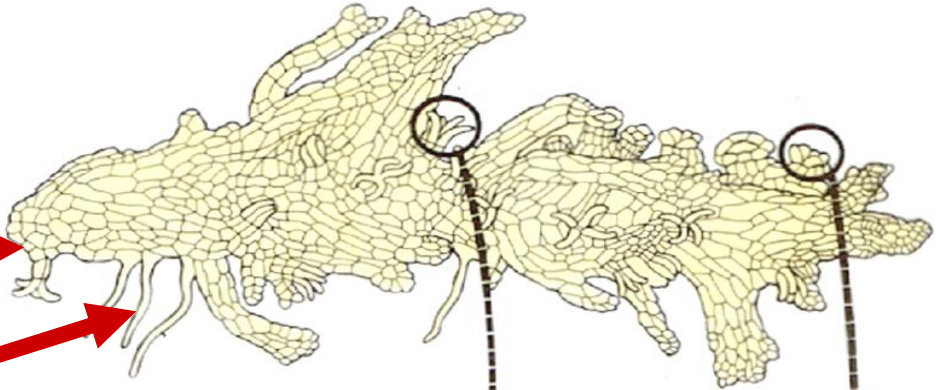


MITOSIS

RHIZOID

GAMETANGIA

RHIZOID

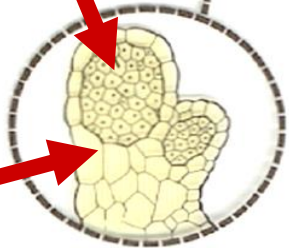
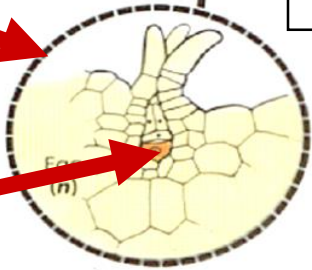


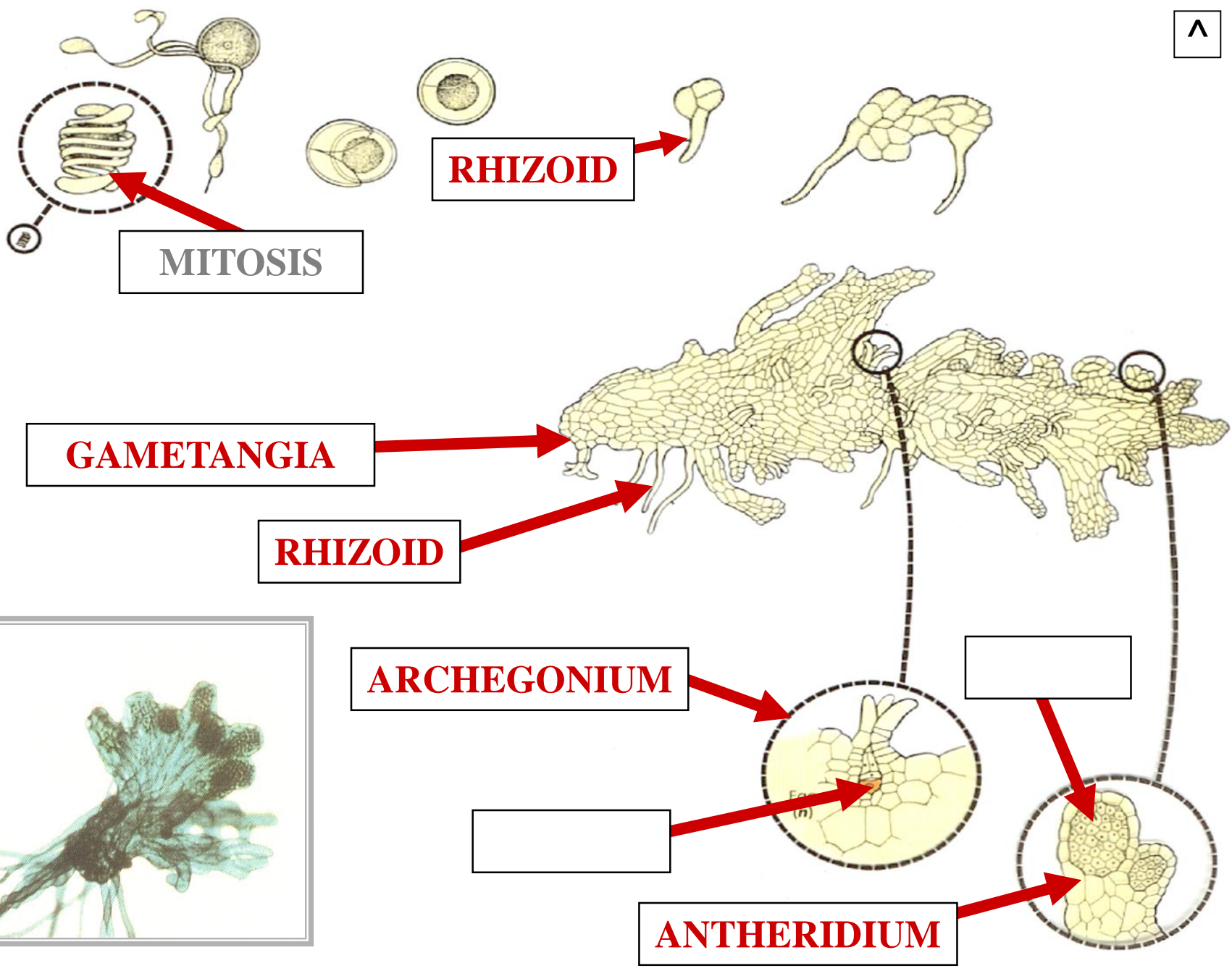
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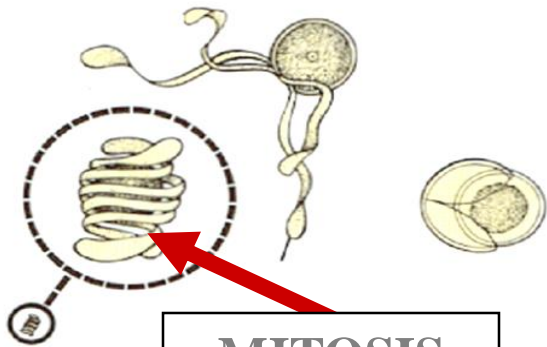
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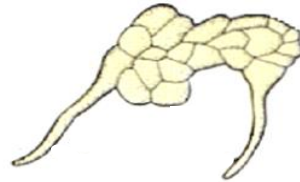




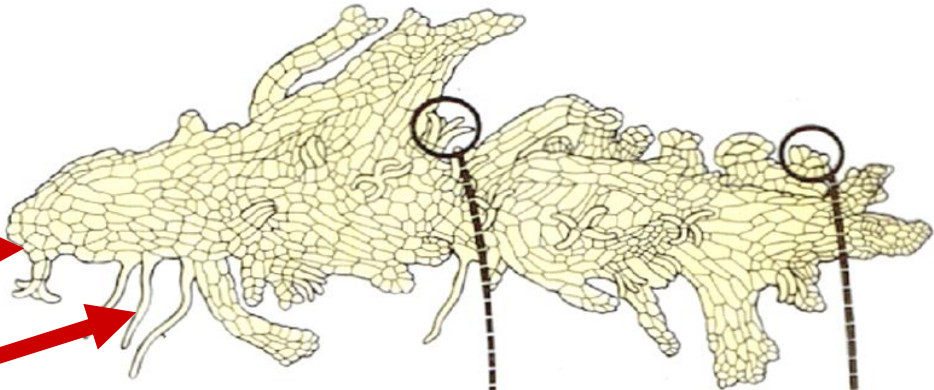
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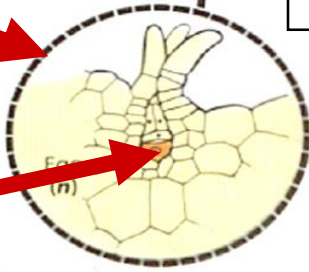
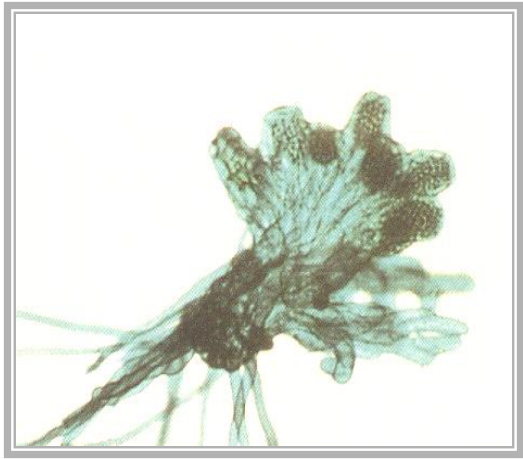
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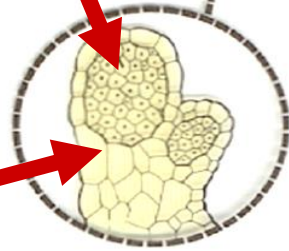
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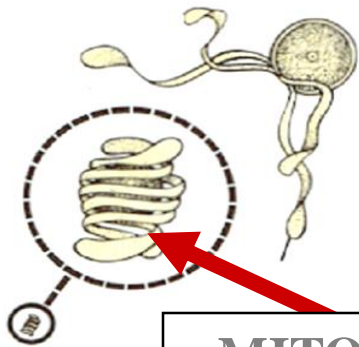


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ANTHERIDIUM

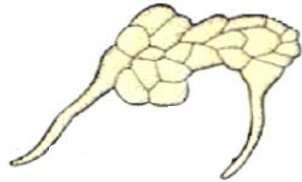




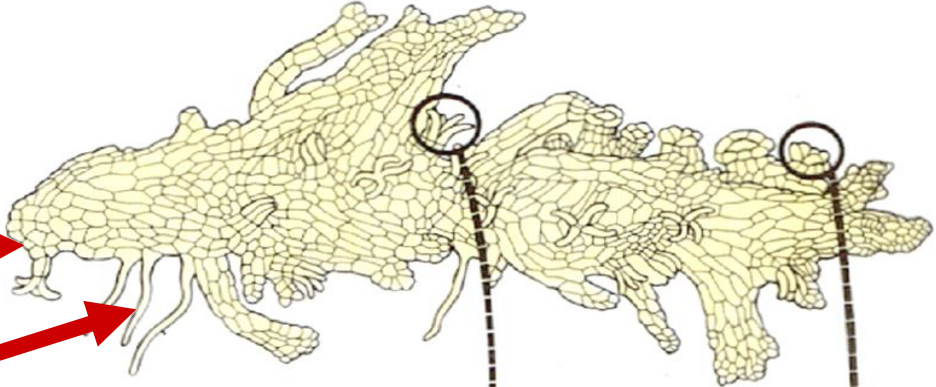
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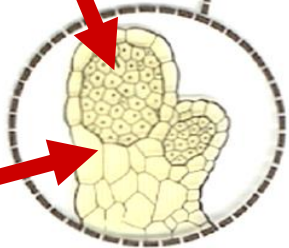
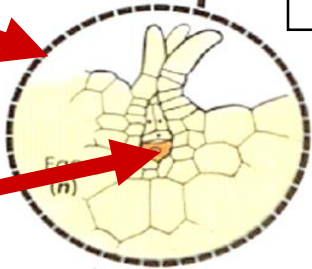
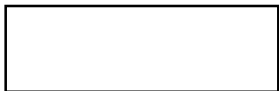


GAMETANGIA



RHIZOID

**ANTHERIDIA
MATURE
AFTER
ARCHEGONIA**



ANTHERIDIUM



MITOSIS

RHIZOID

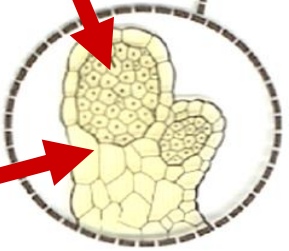
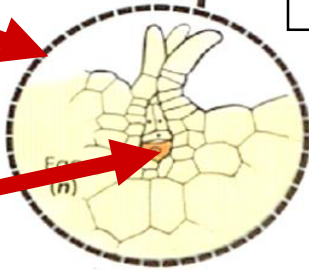
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RHIZOID

**ANTHERIDIA
MATURE
AFTER
ARCHEGONIA**



SPERMATOCYTES



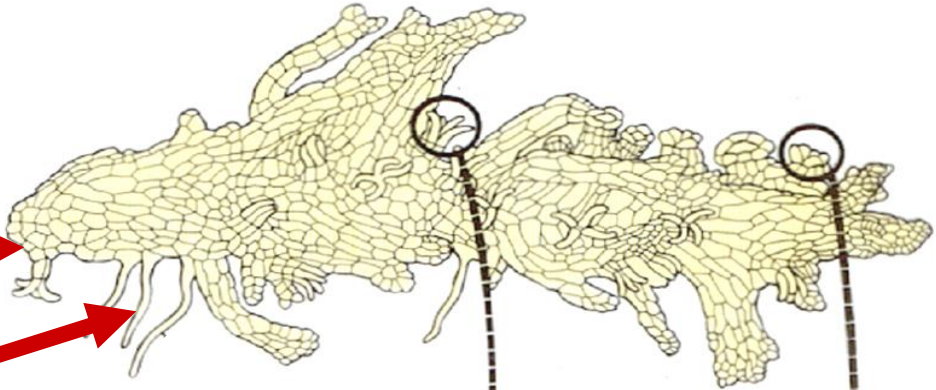


MITOSIS

RHIZOID

GAMETANGIA

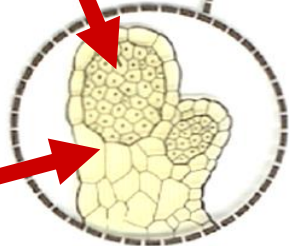
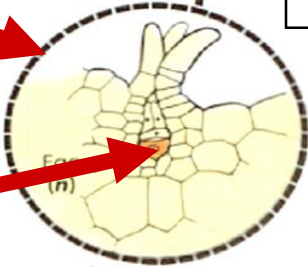
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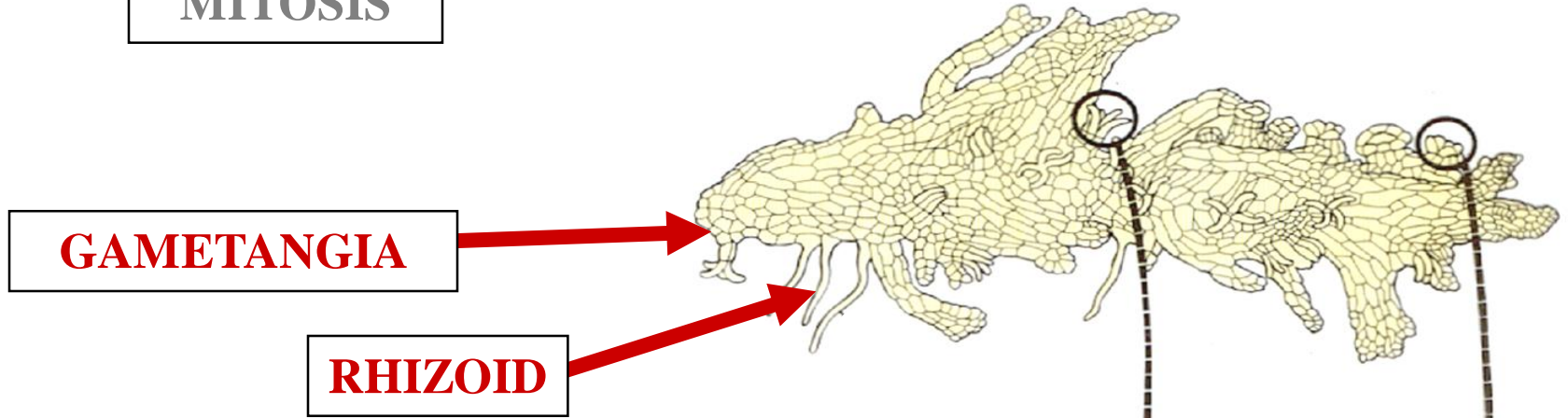
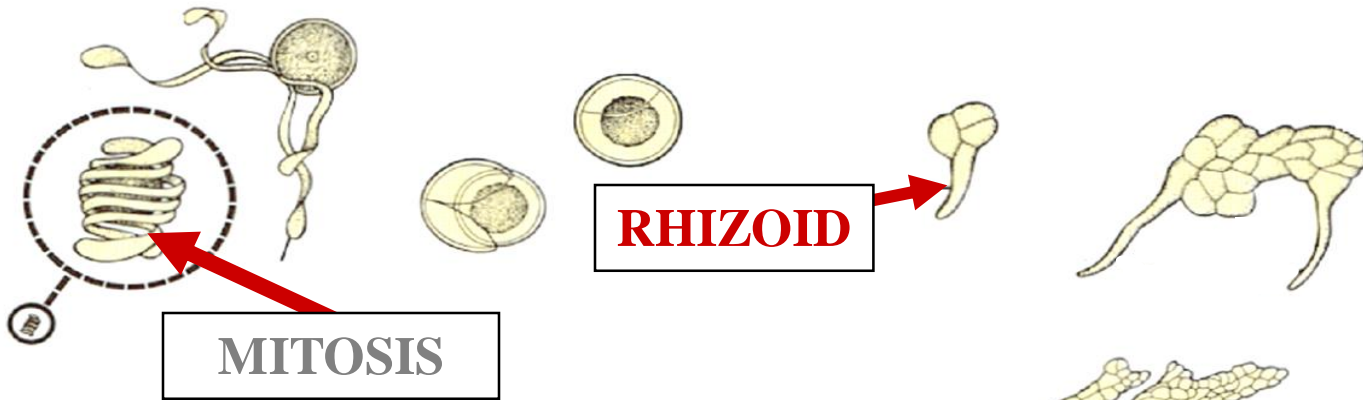


**ANTHERIDIA
MATURE
AFTER
ARCHEGONIA**

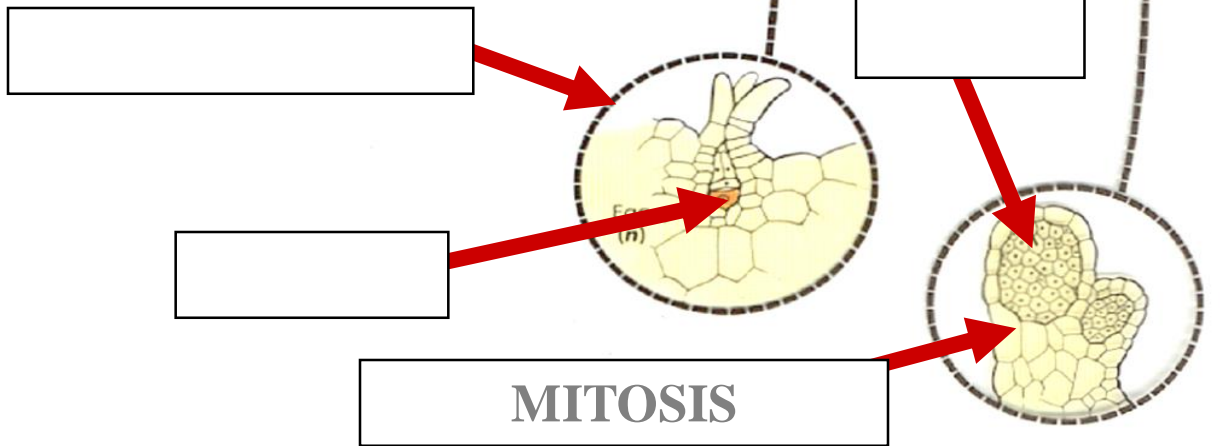


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**ANTHERIDIA
MATURE
AFTER
ARCHEGONIA**



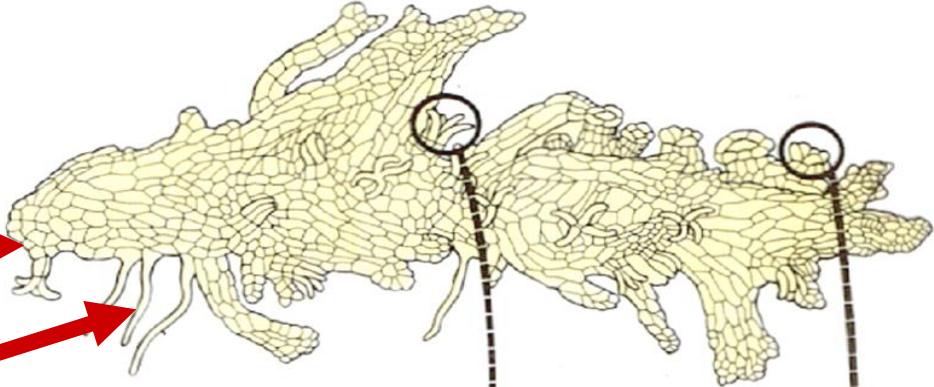


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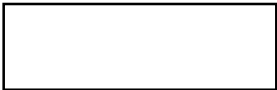
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GAMETANGIA

RHIZOID

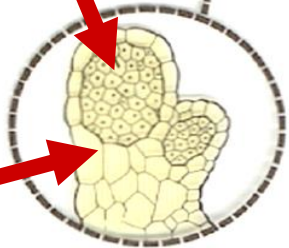
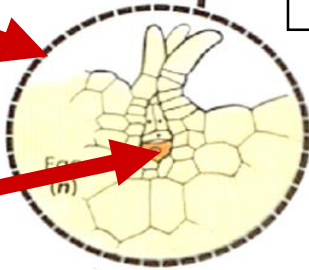


**ANTHERIDIA
MATURE
AFTER
ARCHEGONIA**

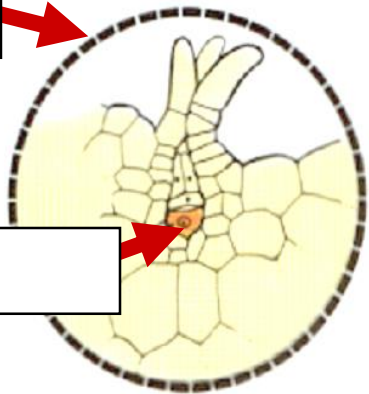


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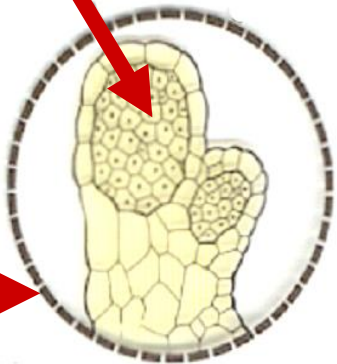
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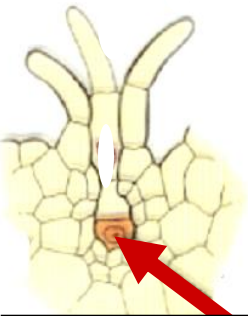
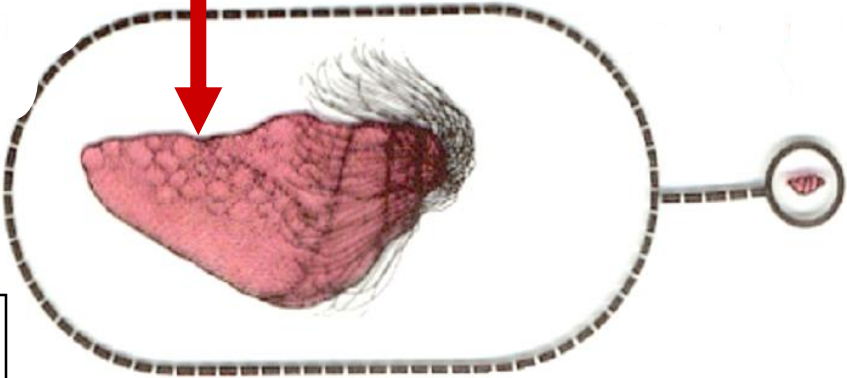
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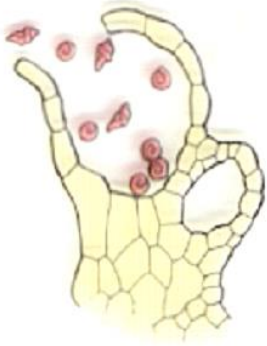
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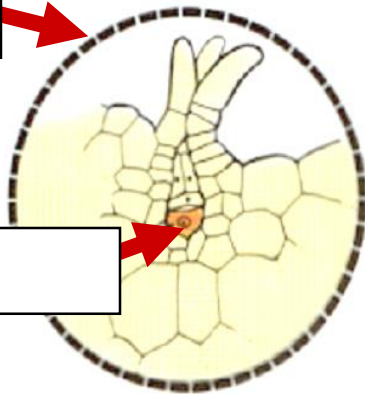
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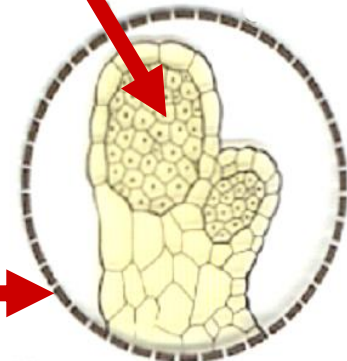
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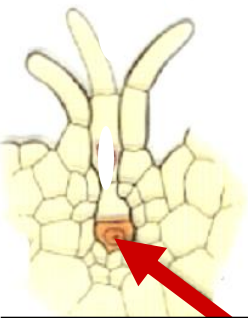
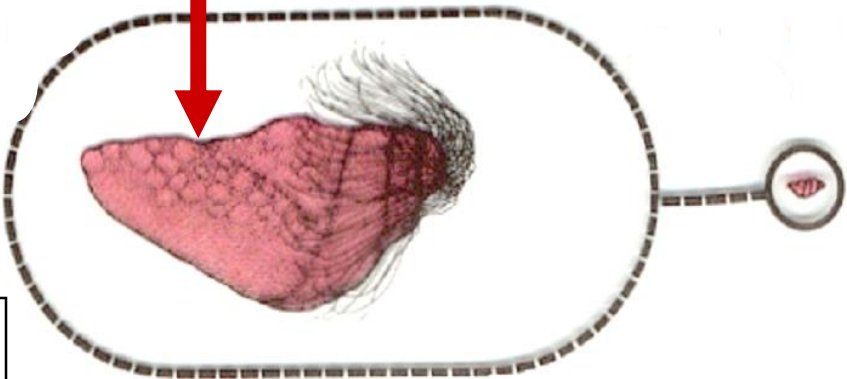


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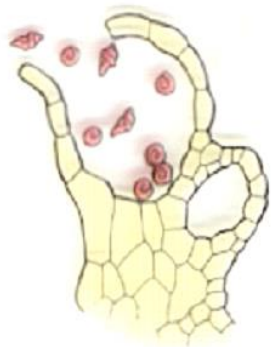


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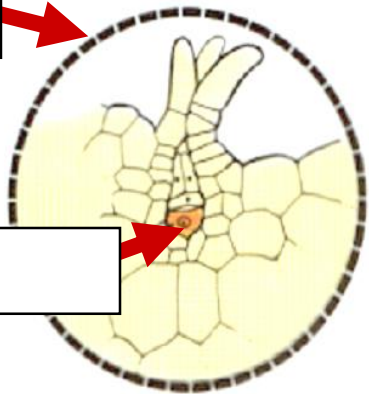
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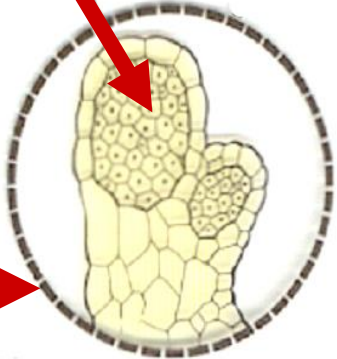


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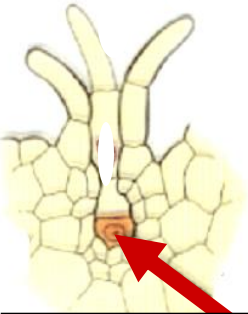
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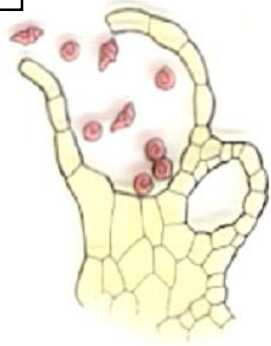
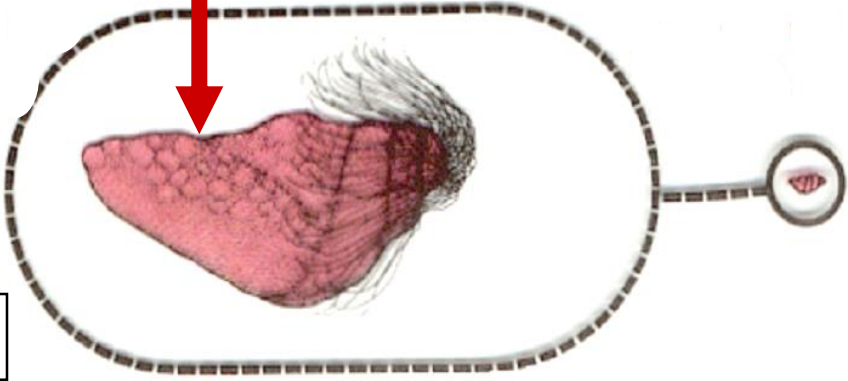
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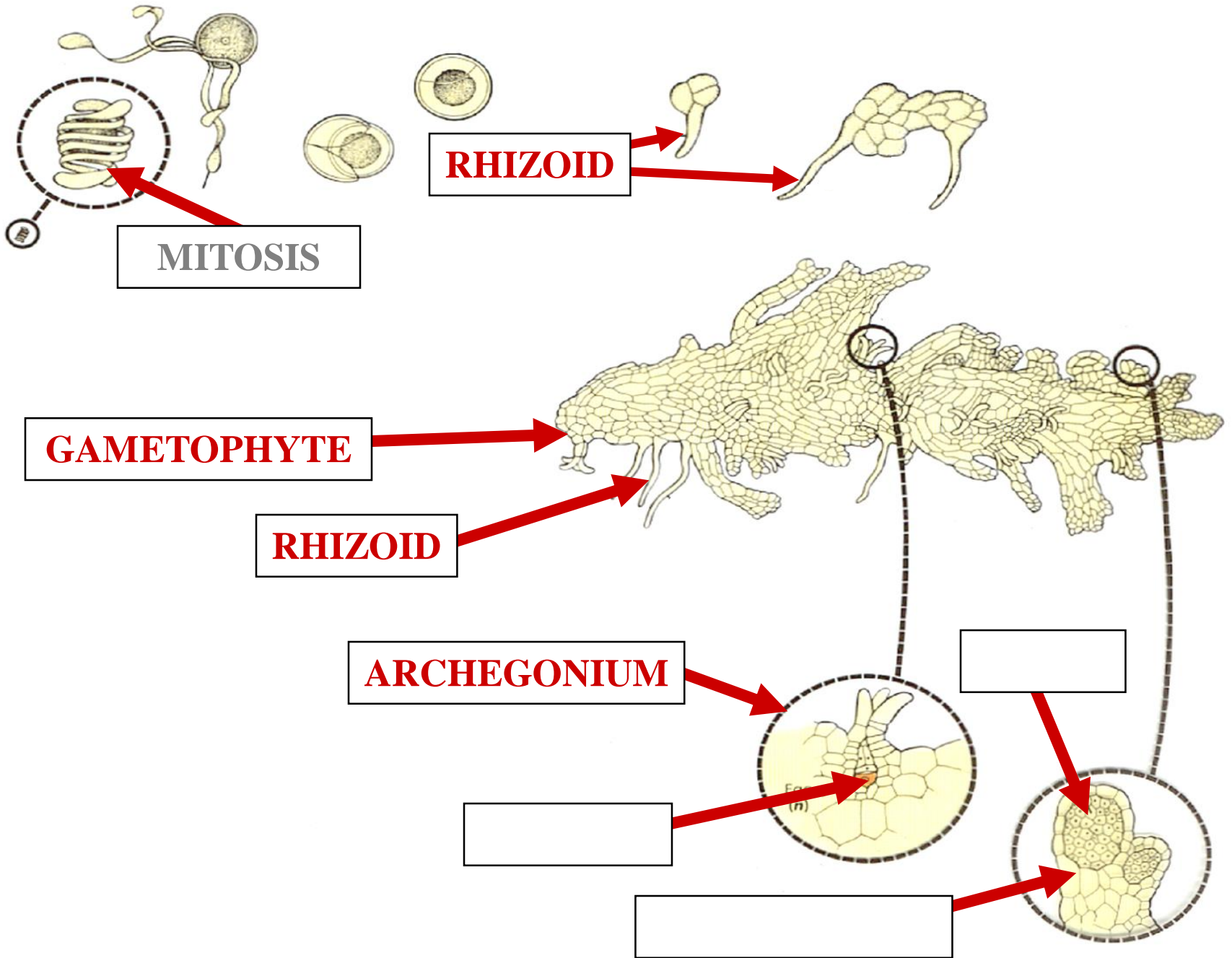
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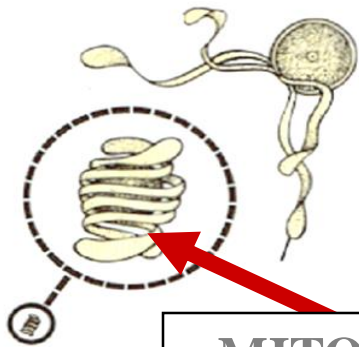
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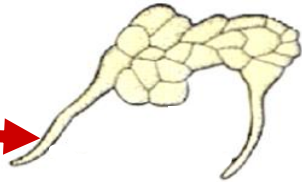
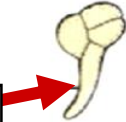




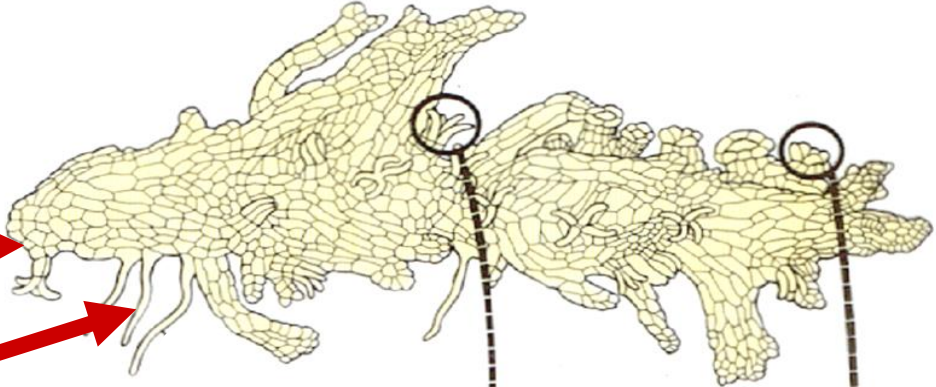
MITOSIS



RHIZOID



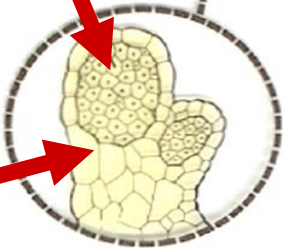
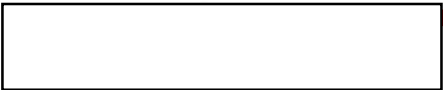
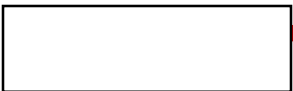
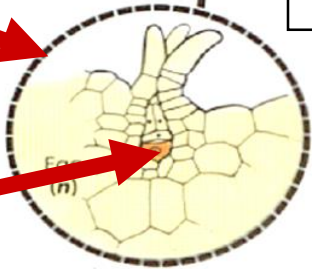
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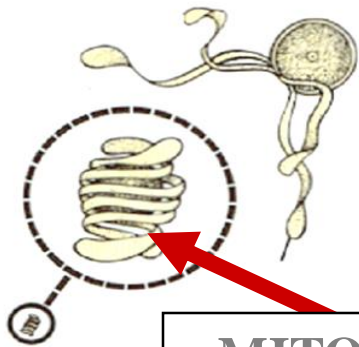


RHIZOID

**ARCHEGONIA
MATURE
BEFORE
ANTHERIDIA**

ARCHEGONIUM

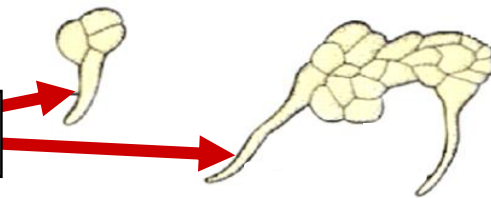




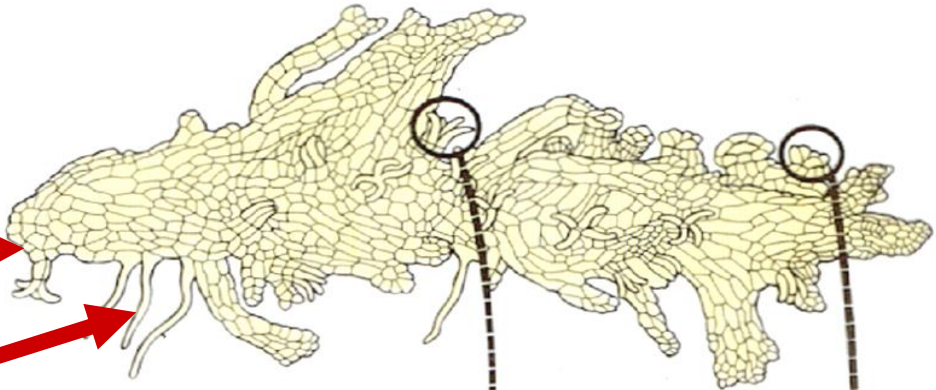
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RHIZOID



GAMETOPHYTE

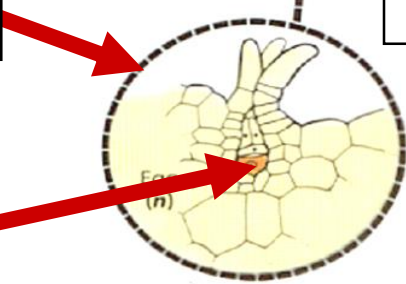


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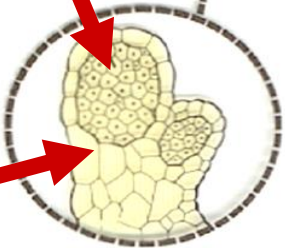
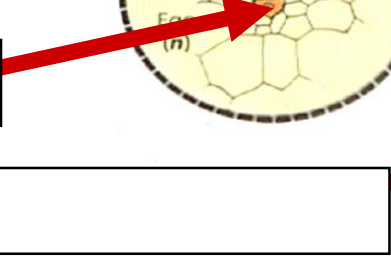


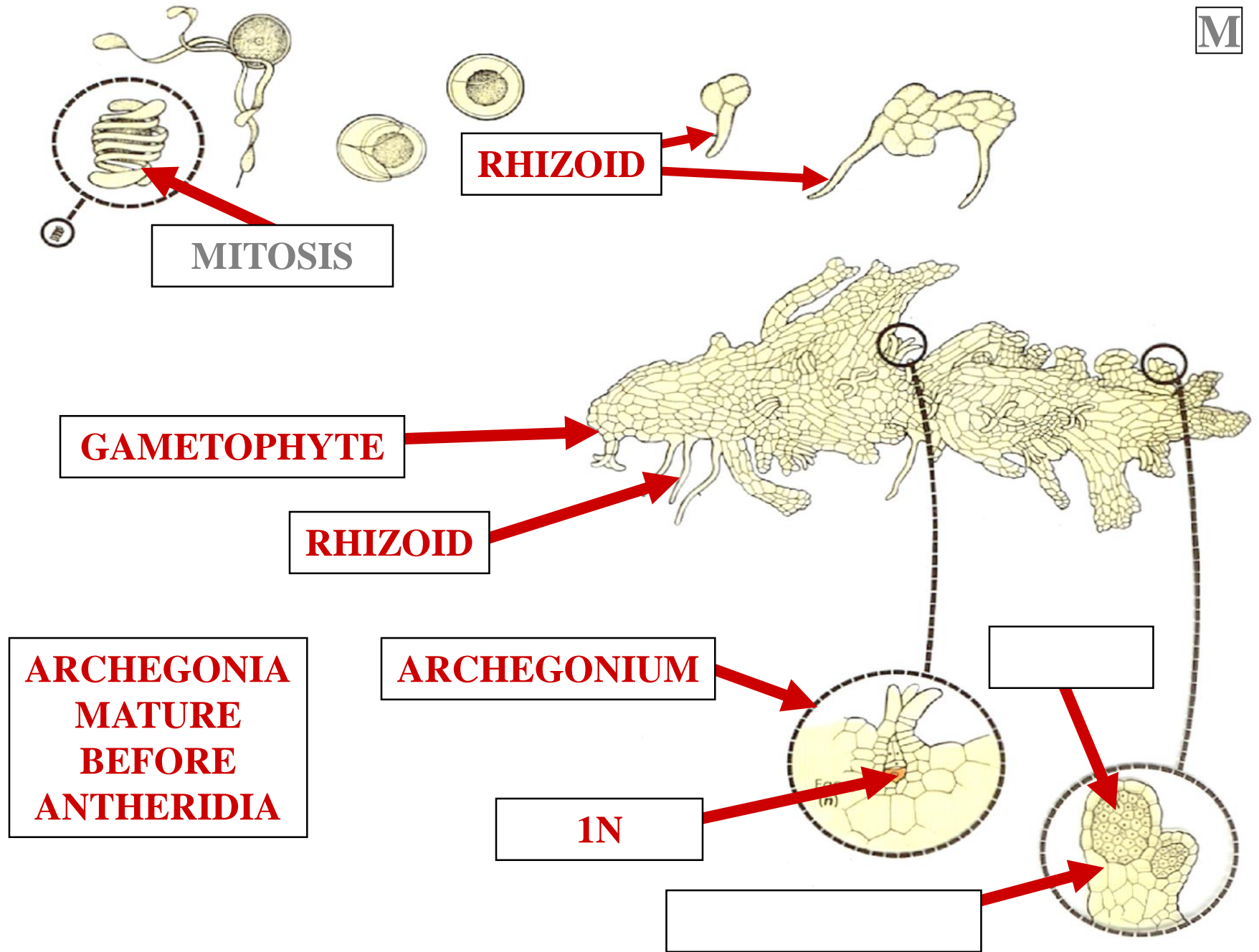
**ARCHEGONIA
MATURE
BEFORE
ANTHERIDIA**

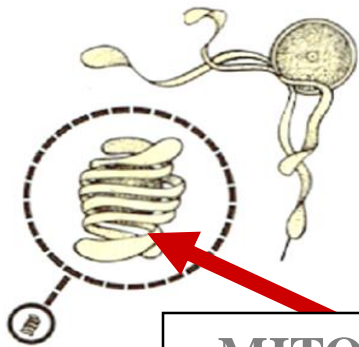
ARCHEGONIUM



OOCYTE



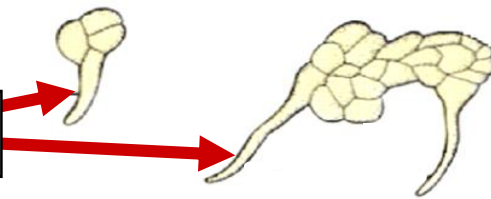




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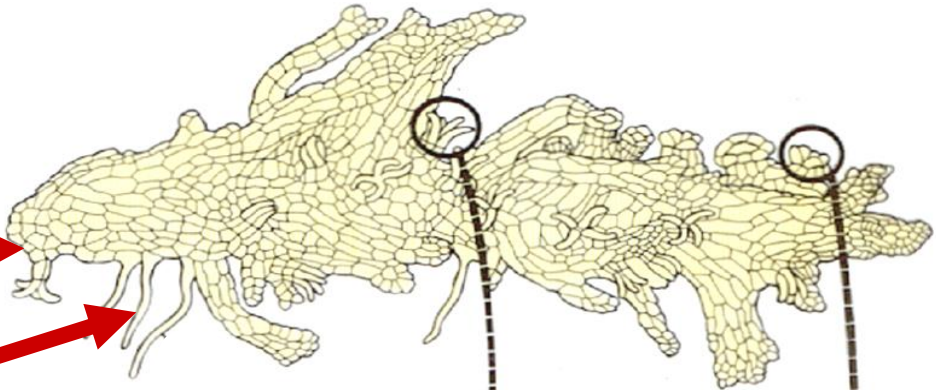


RHIZOID



GAMETOPHYTE

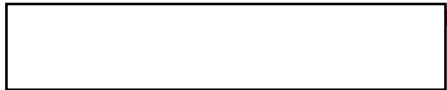
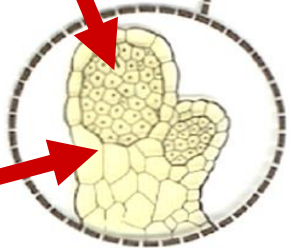
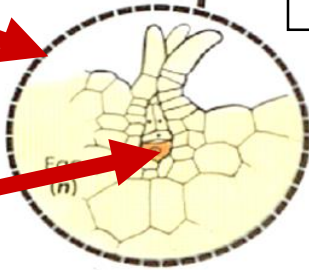
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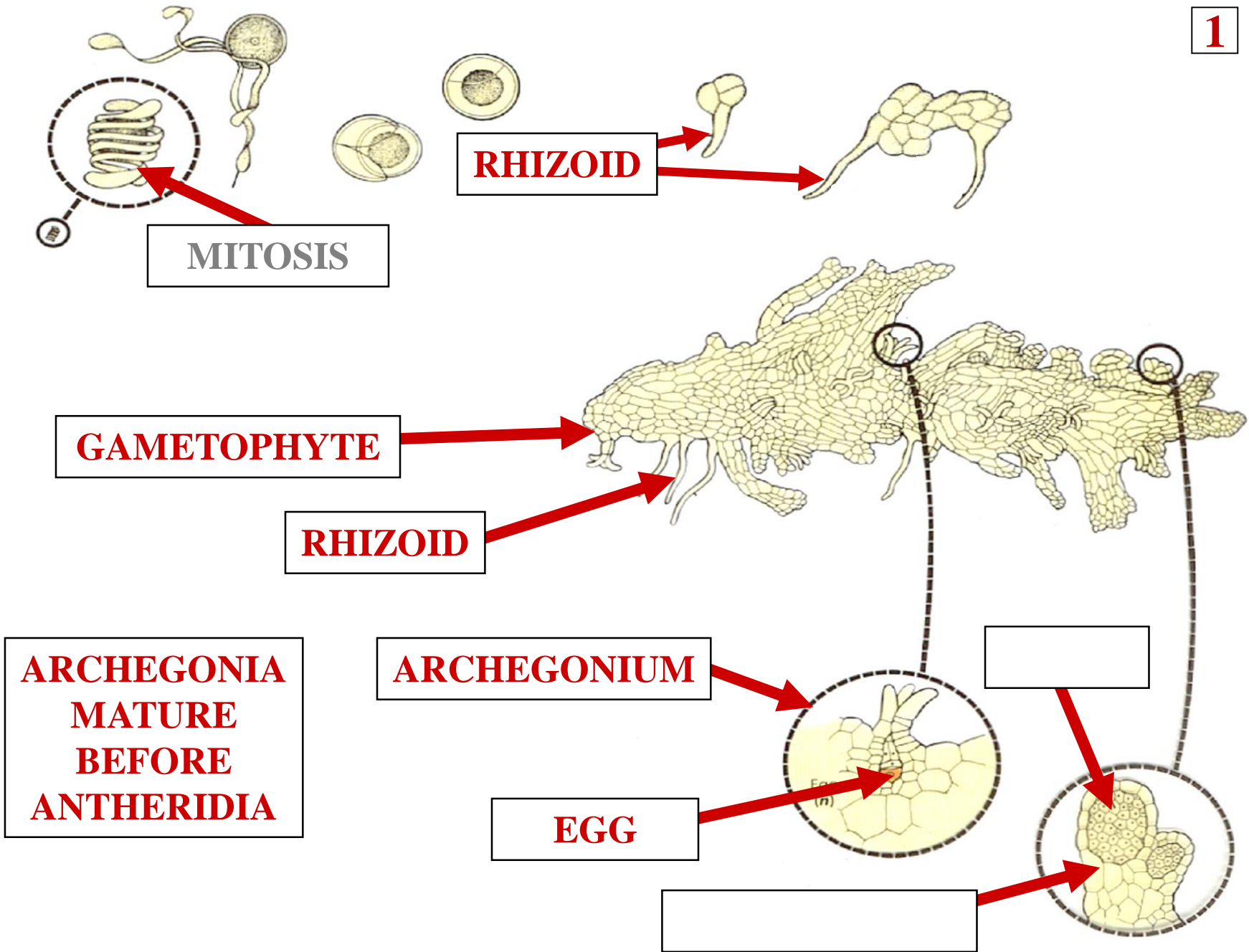


**ARCHEGONIA
MATURE
BEFORE
ANTHERIDIA**

ARCHEGONIUM

MITOSIS





^

A

A

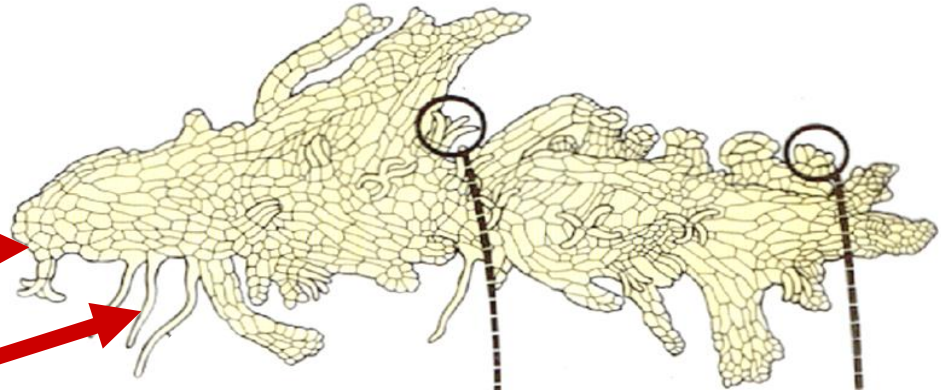


MITOSIS

RHIZOID

GAMETOPHYTE

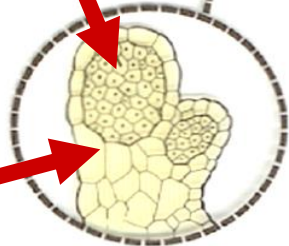
RHIZOID



**ARCHEGONIA
MATURE
BEFORE
ANTHERIDIA**

ARCHEGONIUM

1N



[Empty box]



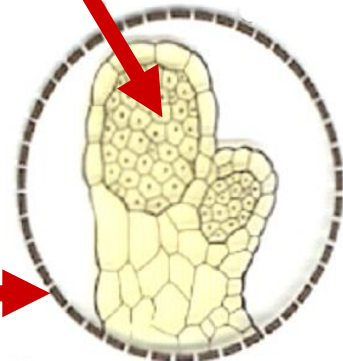
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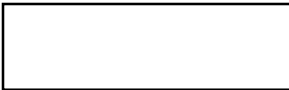
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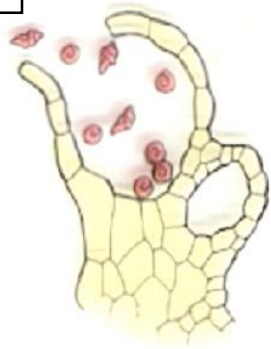
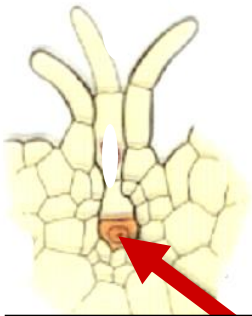
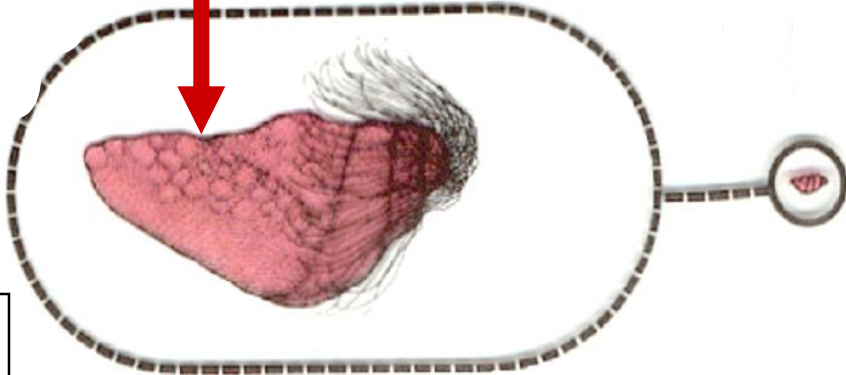
SPERM



ANTHERIDIUM



MULTI-FLAGELLATED SPERM





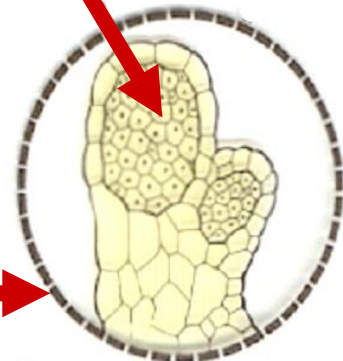
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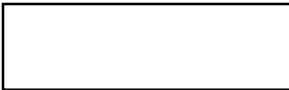
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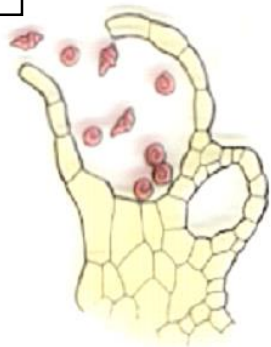
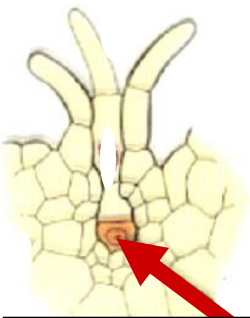
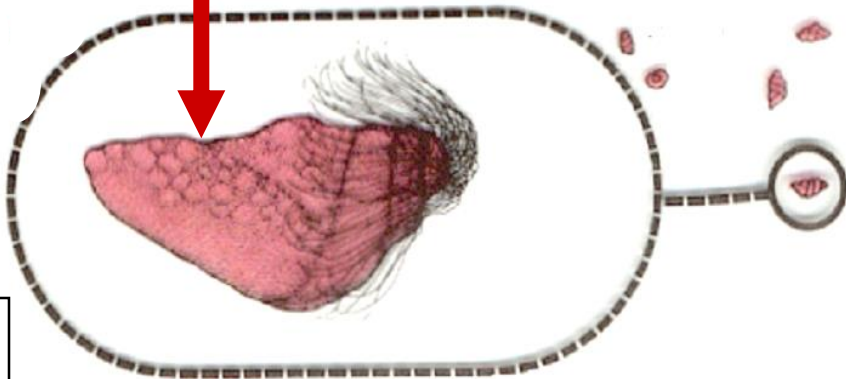
SPERM



ANTHERIDIUM



MULTI-FLAGELLATED SPERM



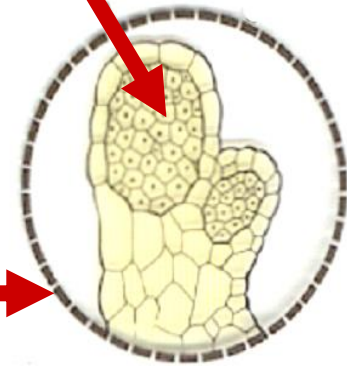
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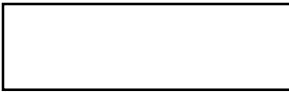
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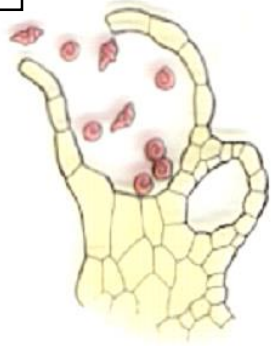
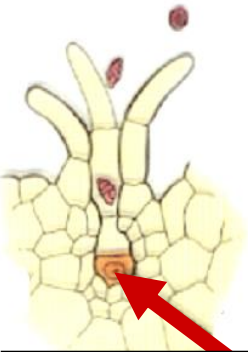
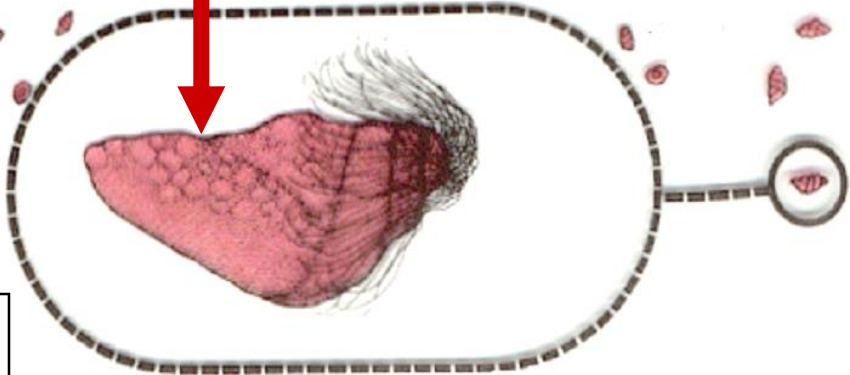
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ANTHERIDIUM



MULTI-FLAGELLATED SPERM

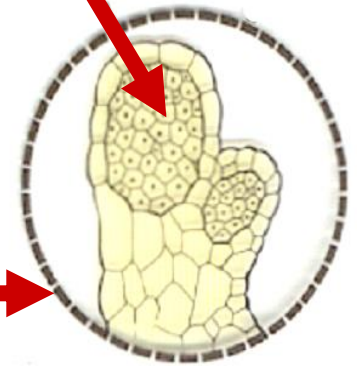


ARCHEGONIUM



EGG

SPERM



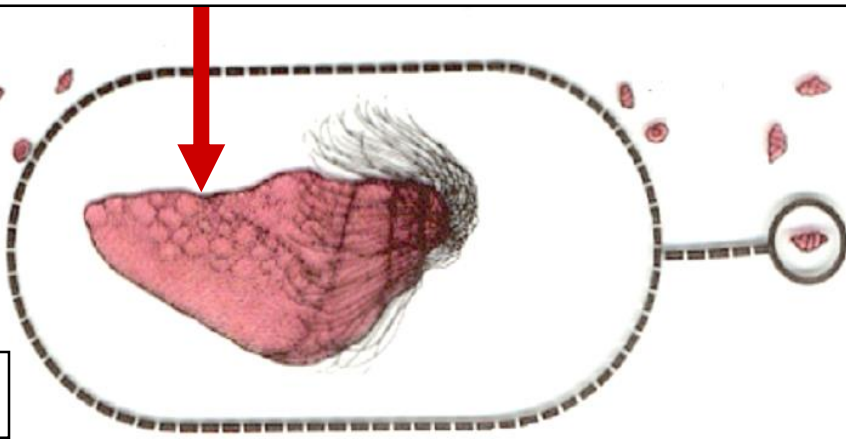
ANTHERIDIUM



MULTI-FLAGELLATED SPERM



SYNGAMY



ARCHEGONIUM



EGG



SPERM



ANTHERIDIUM

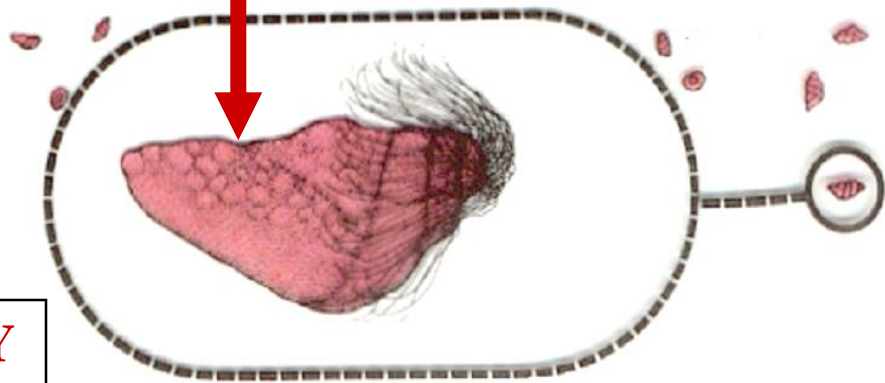
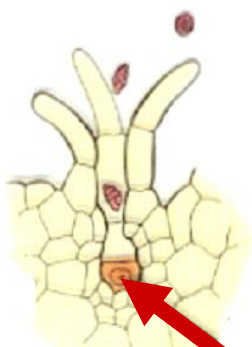


WATER

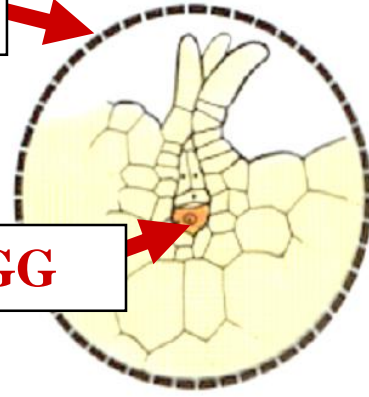
MULTI-FLAGELLATED SPERM



SYNGAMY



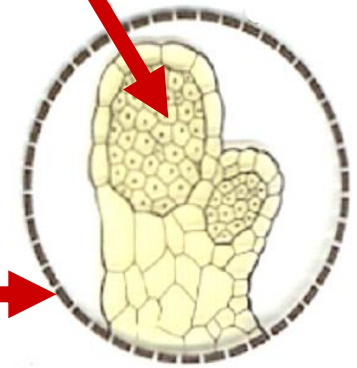
ARCHEGONIUM



EGG



SPERM

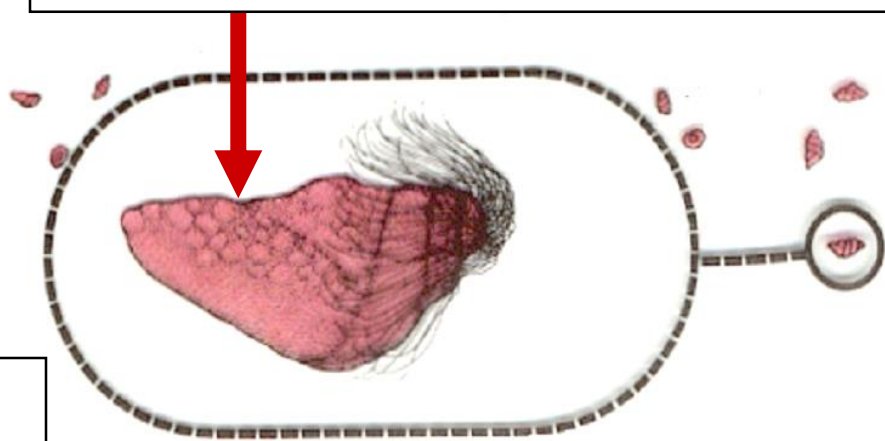


ANTHERIDIUM



WATER

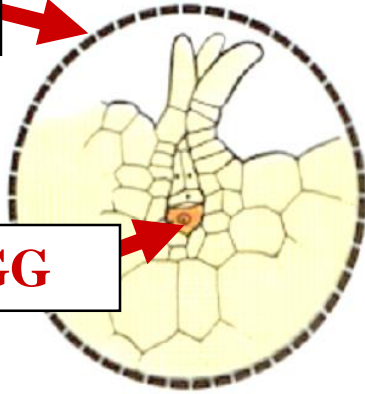
MULTI-FLAGELLATED SPERM



ZYGOTE



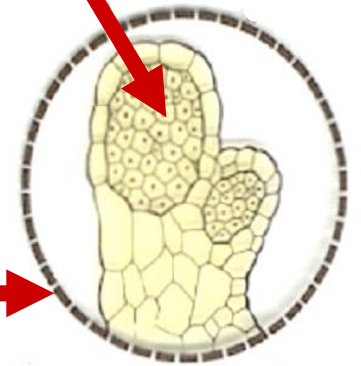
ARCHEGONIUM



EGG



SPERM

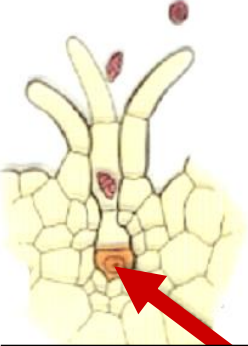
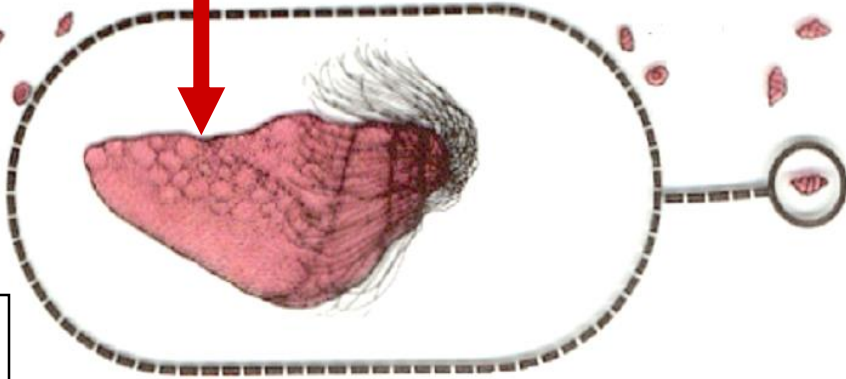


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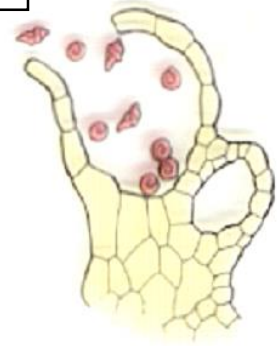


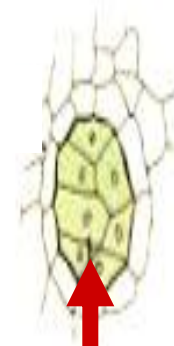
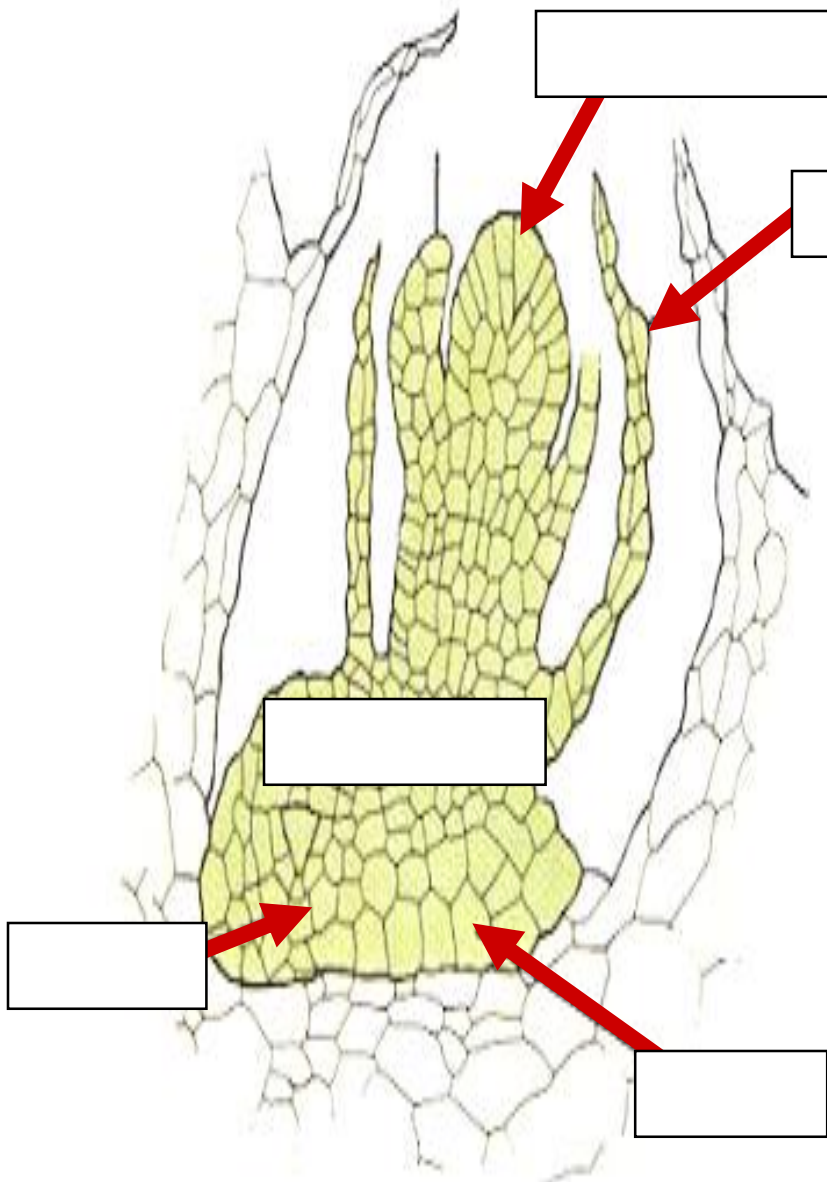
WATER

MULTI-FLAGELLATED SPERM

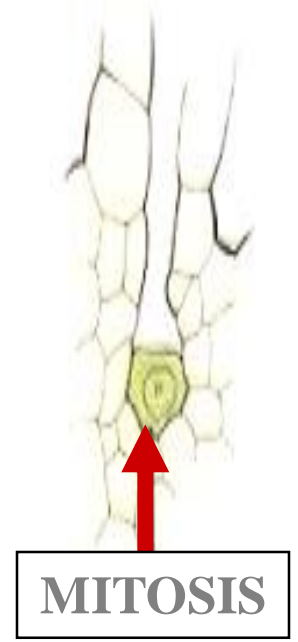
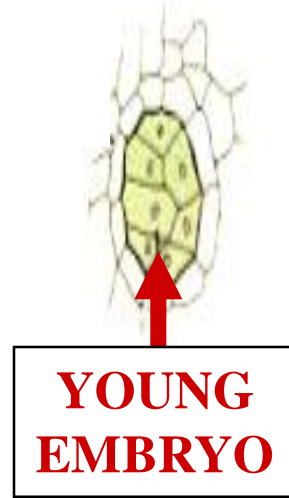
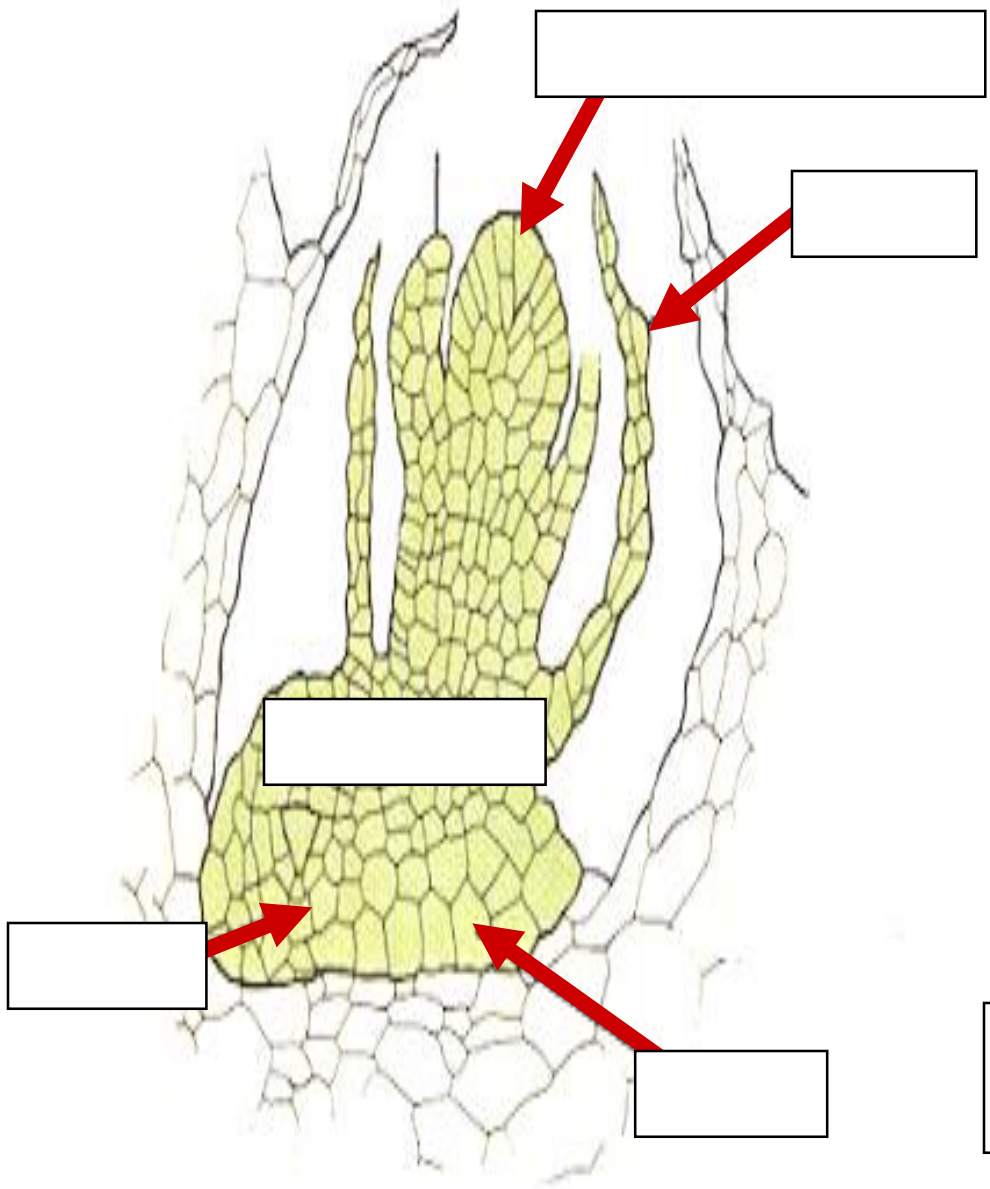


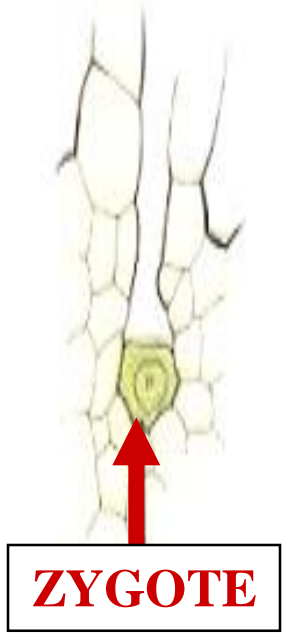
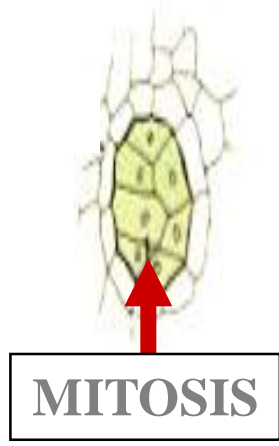
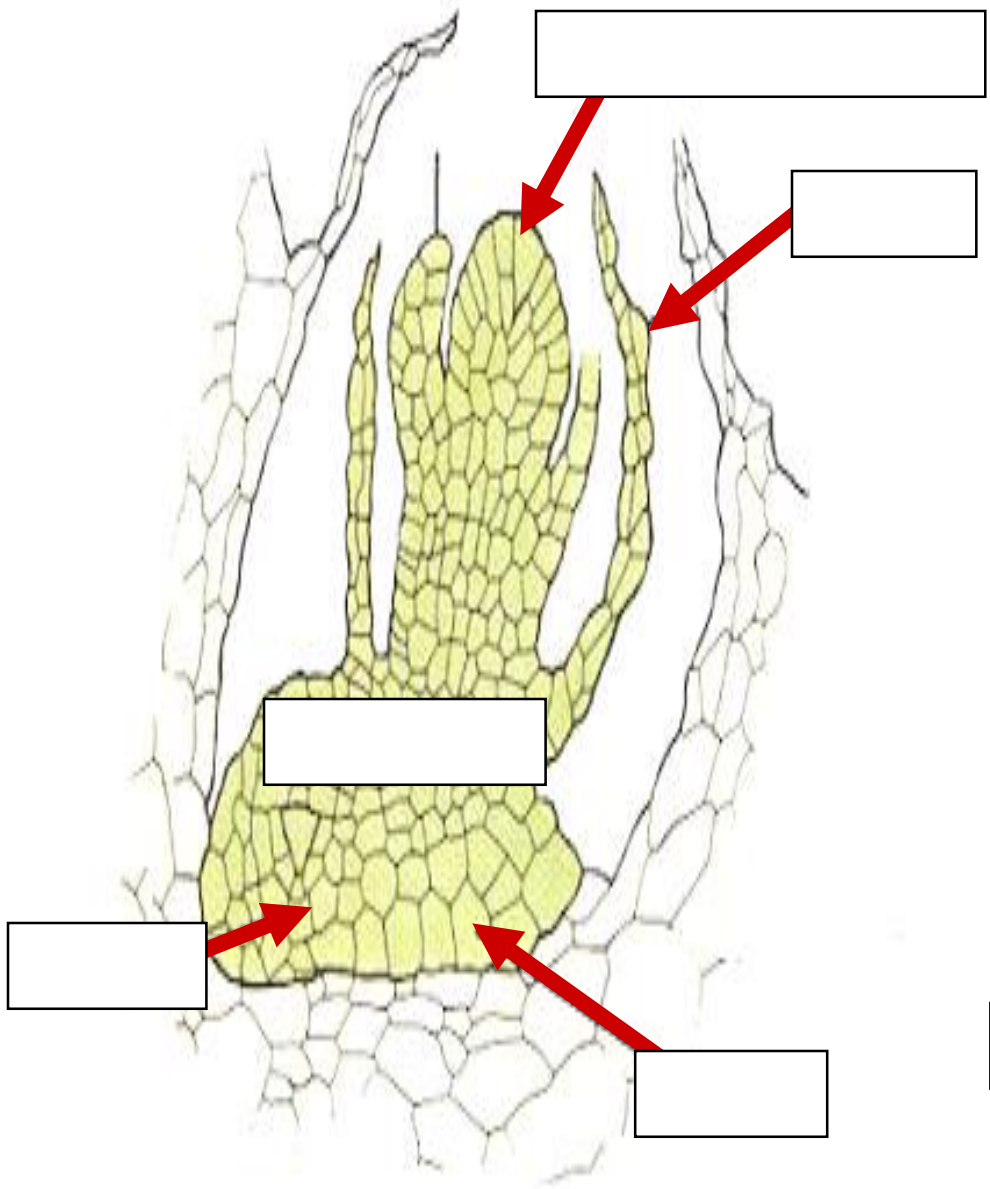
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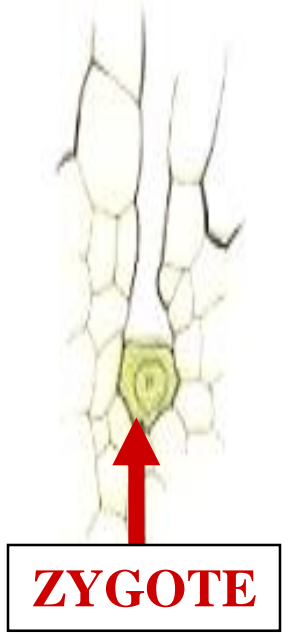
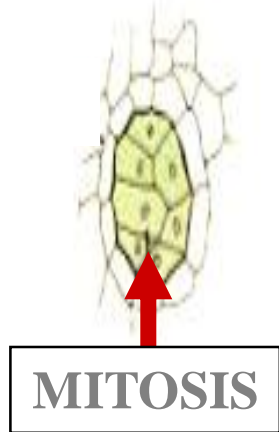
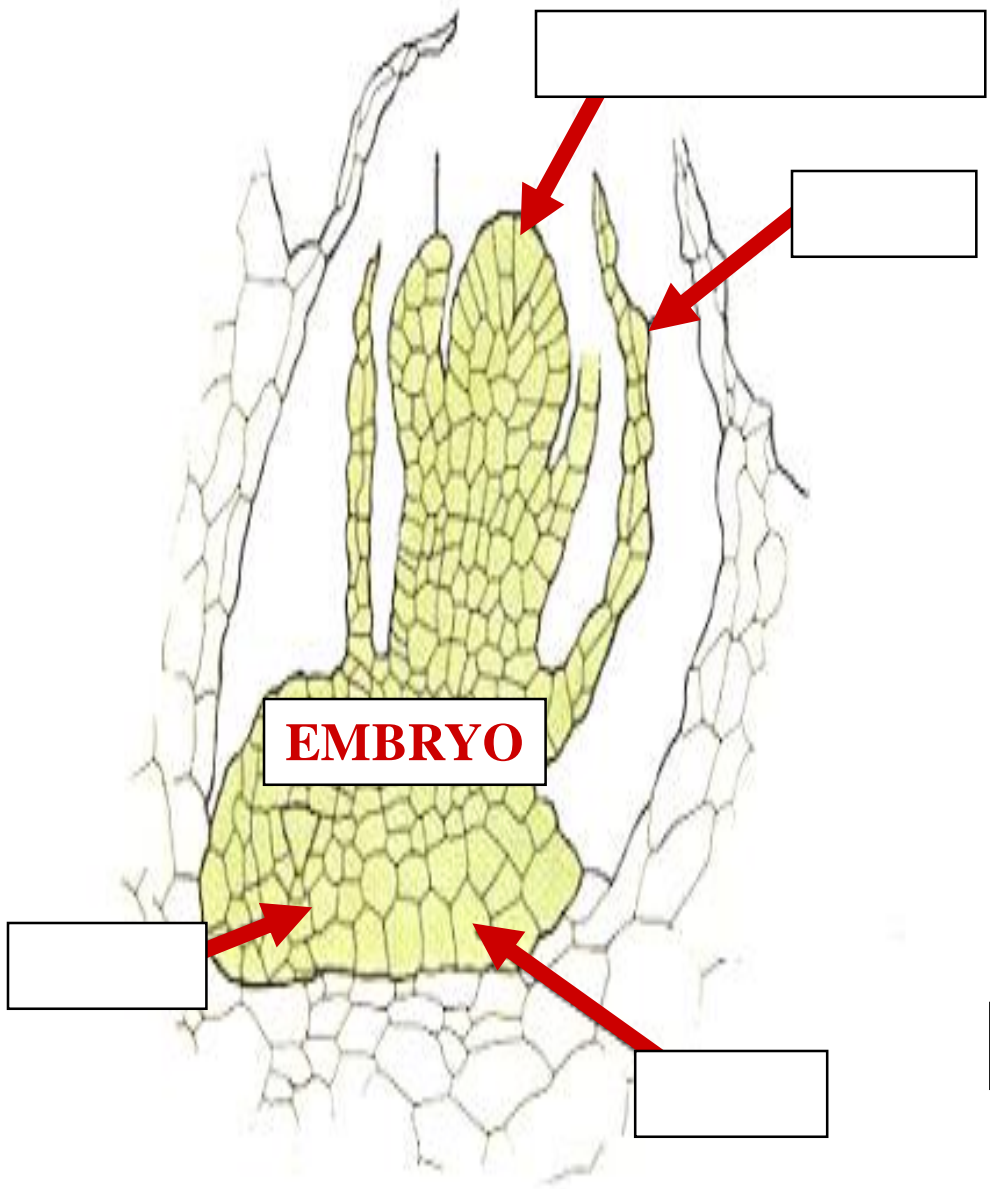


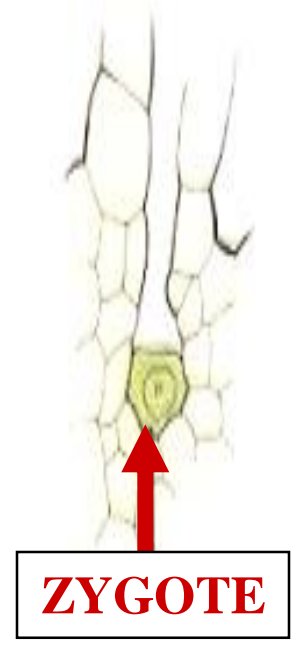
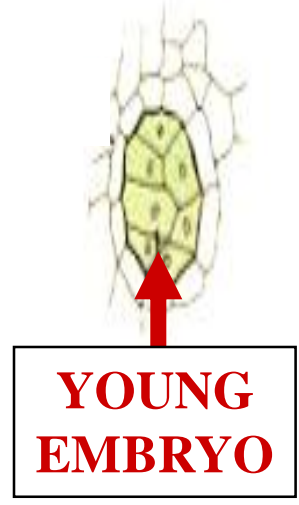
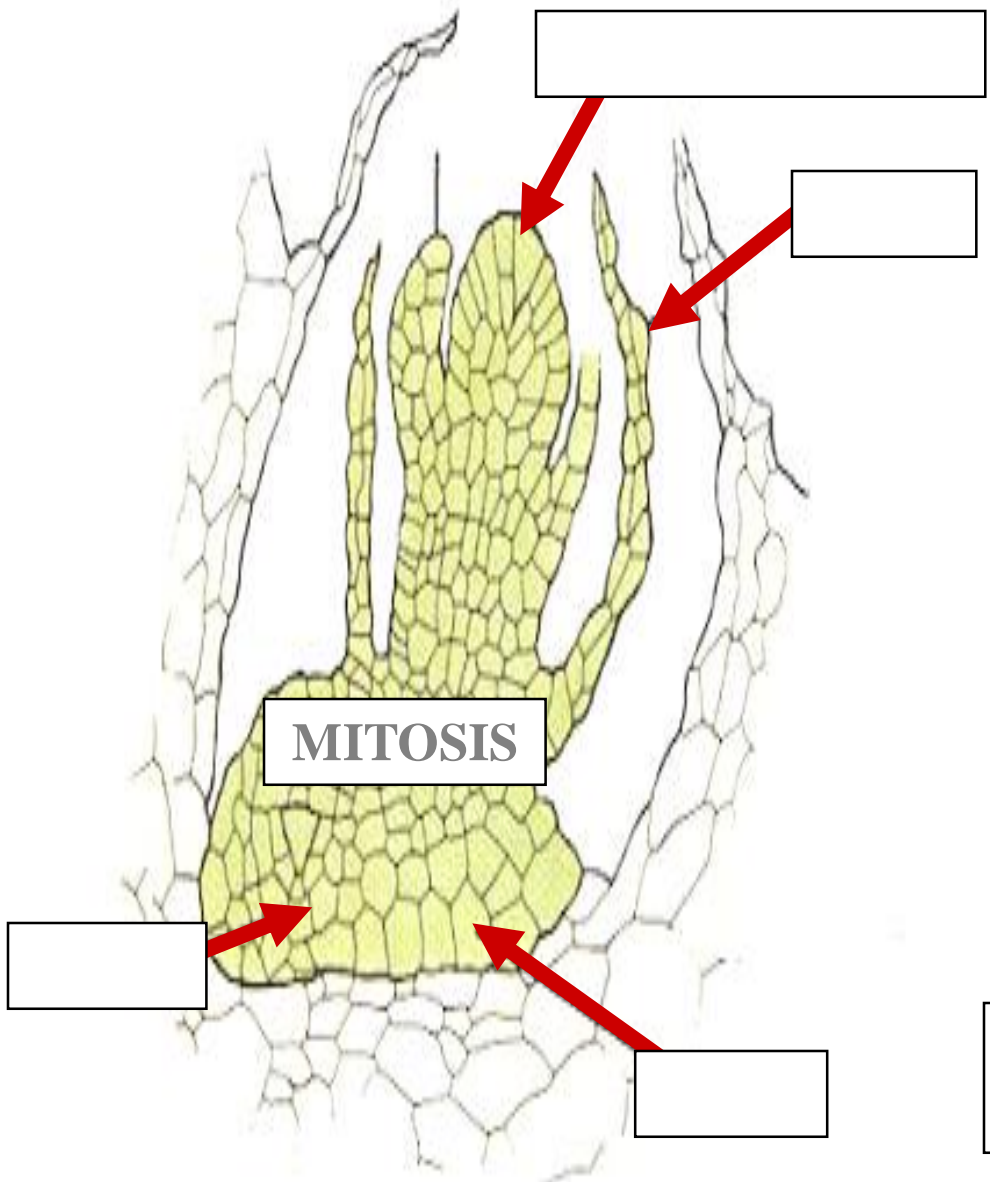


MITOSIS











STROBILUS

MATURE SPOROPHYTE



WHORLED



INTERNODE



NODE



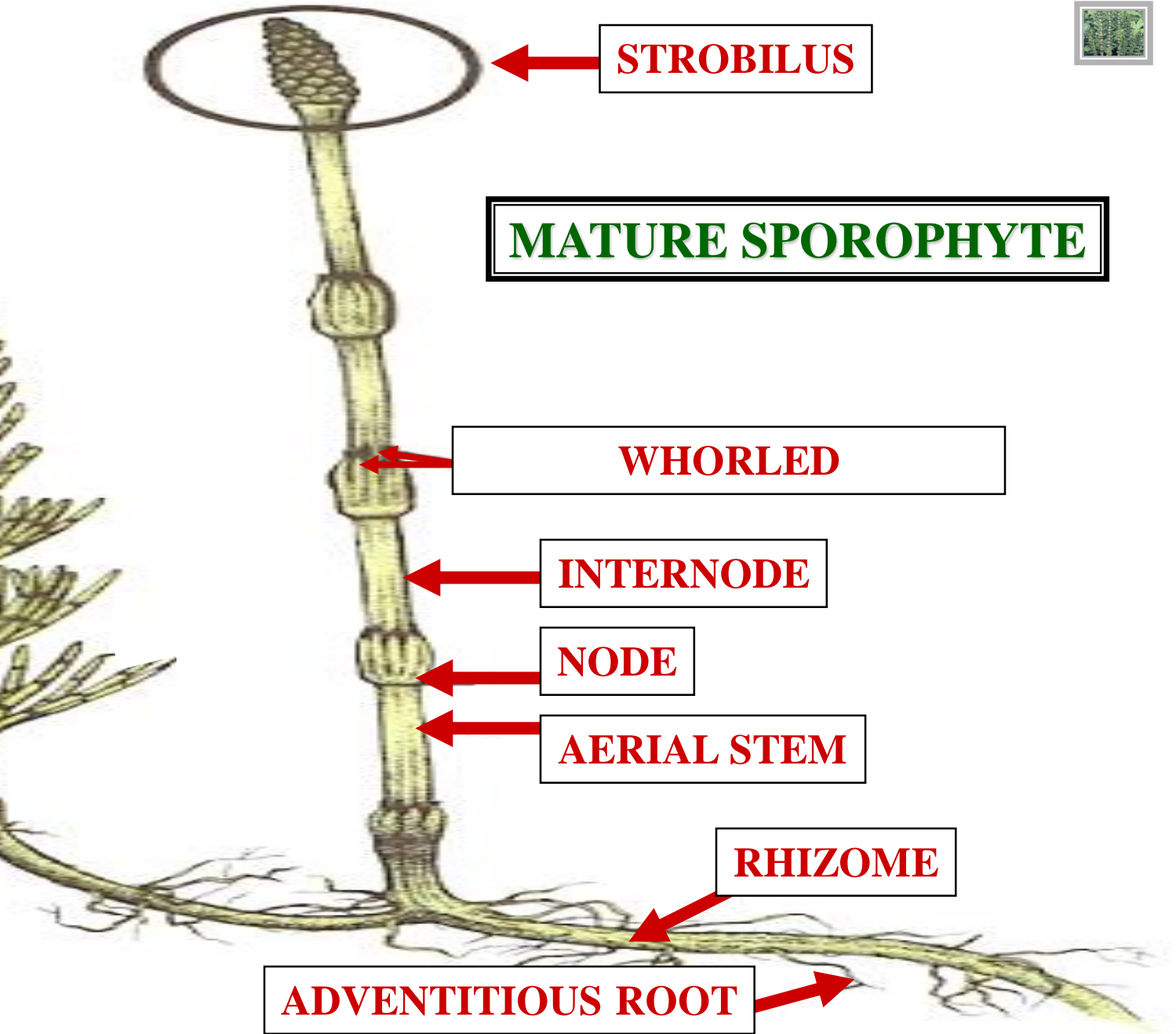
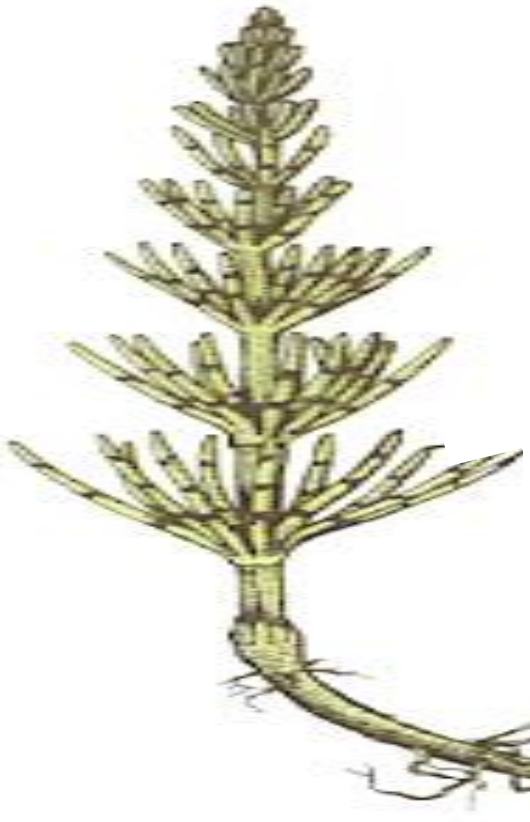
AERIAL STEM



RHIZOME



ADVENTITIOUS ROOT





EQUISETUM



PTERIDOPHYTA CLASSIFICATION

END
LECTURE
MATERIAL
1ST EXAM



PTERIDOPHYTA CLASSIFICATION



ALABAMA
TRACHEOPHYTE

OPHIOGLOSSOPSIDA

ALABAMA
TRACHEOPHYTE



COMMON NAME



OPHIOGLOSSOPSIDS

OPHIOGLOSSOPSIDA CHARACTERS

OPHIOGLOSSOPSIDA CHARACTERS



TERRESTRIAL

OPHIOGLOSSOPSIDA CHARACTERS

OPHIOGLOSSOPSIDA CHARACTERS



**TERRESTRIAL
NON-REDUCED FROND
OR
REDUCED FROND**

OPHIOGLOSSOPSIDA CHARACTERS

OPHIOGLOSSOPSIDA CHARACTERS



TERRESTRIAL
NON-REDUCED FROND
OR
REDUCED FROND
EUSPORANGIATE

OPHIOGLOSSOPSIDA CHARACTERS

OPHIOGLOSSOPSIDA

CHARACTERS



TERRESTRIAL
NON-REDUCED FROND
OR
REDUCED FROND
EUSPORANGIATE
NON-SYNGIATE
OR
SYNGIATE

OPHIOGLOSSOPSIDA

CHARACTERS

OPHIOGLOSSOPSIDA

CHARACTERS



TERRESTRIAL
NON-REDUCED FROND
OR
REDUCED FROND
EUSPORANGIATE
NON-SYNANGIATE
OR
SYNANGIATE
HOMOSPOROUS

OPHIOGLOSSOPSIDA

CHARACTERS

OPHIOGLOSSOPSIDA

CHARACTERS



TERRESTRIAL
NON-REDUCED FROND
OR
REDUCED FROND
EUSPORANGIATE
NON-SYNGIATE
OR
SYNGIATE
HOMOSPOROUS
REDUCED ROOTS

OPHIOGLOSSOPSIDA

CHARACTERS

OPHIOGLOSSOPSIDA ORDERS

OPHIOGLOSSOPSIDA ORDERS



OPHIOGLOSSALES

OPHIOGLOSSOPSIDA ORDERS

OPHIOGLOSSOPSIDA ORDERS



**OPHIOGLOSSALES
PSILOTALES**

**OPHIOGLOSSOPSIDA
ORDERS**

ALABAMA
TRACHEOPHYTE

OPHIOGLOSSALES

ALABAMA
TRACHEOPHYTE