

A close-up photograph of a white magnolia flower with green leaves, serving as the background for the title. The flower is in full bloom, showing its petals and stamens. The background is dark and out of focus.

ANGIOSPERM PHYSIOLOGY

ANGIOSPERM SEED

SEED



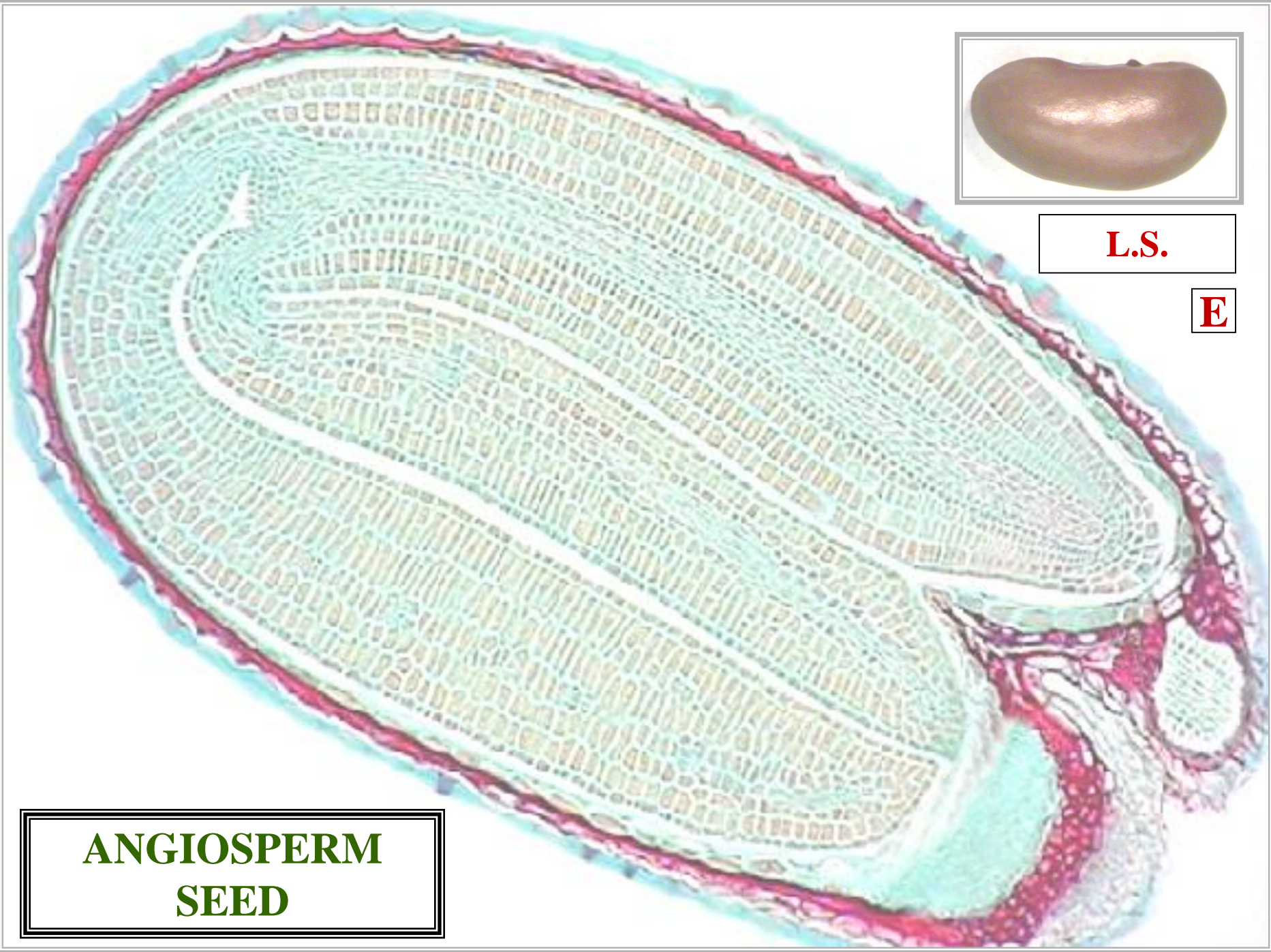
ANGIOSPERM SEED

PLANT EMBRYO

WITHIN A PROTECTIVE

OUTER COAT

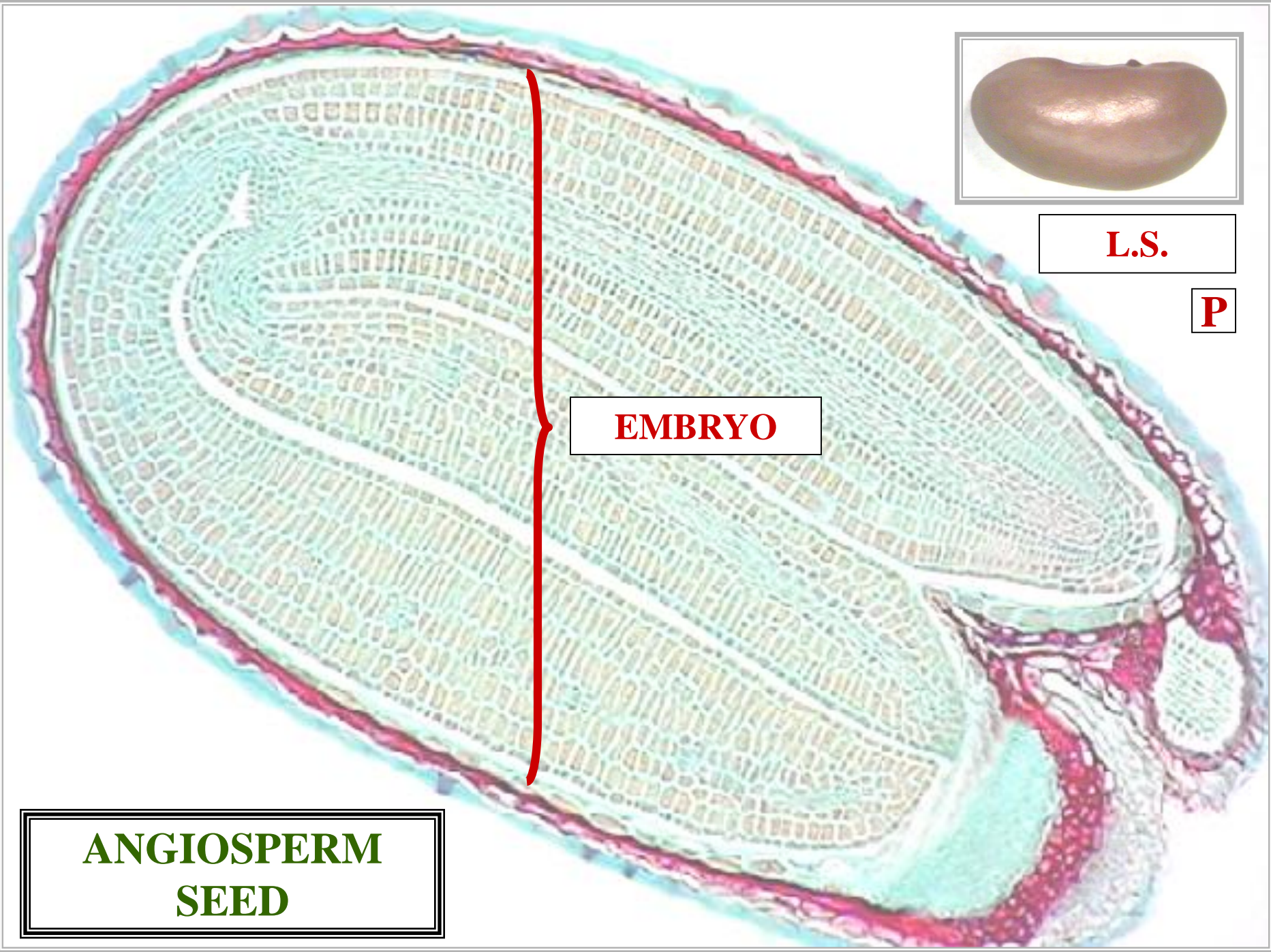
ANGIOSPERM SEED



L.S.

E

**ANGIOSPERM
SEED**

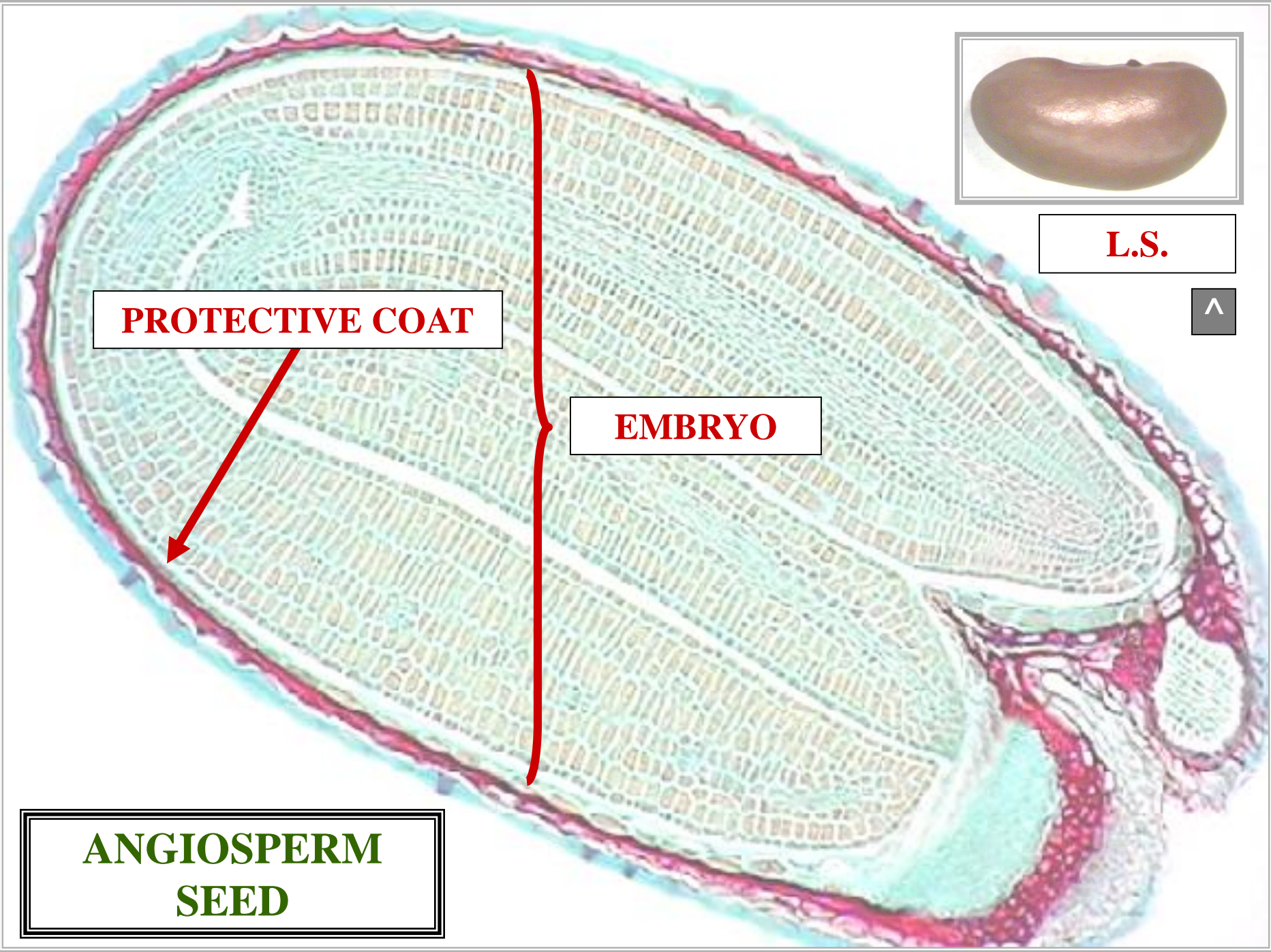


L.S.

P

EMBRYO

ANGIOSPERM
SEED



L.S.



PROTECTIVE COAT

EMBRYO

**ANGIOSPERM
SEED**



ANGIOSPERM SEED MORPHOLOGY

ANGIOSPERM SEED MORPHOLOGY



TESTA

SEED MORPHOLOGY

TESTA



T

PROTECTIVE
SEED COAT

SEED MORPHOLOGY

TESTA

ANGIOSPERM SEED MORPHOLOGY



TESTA





TESTA

**ANGIOSPERM
SEED
MORPHOLOGY**



RAPHIE

SEED MORPHOLOGY

RAPHE

PROTECTIVE

SEED COAT

RIDGE

SEED MORPHOLOGY

RAPHE





TESTA

**ANGIOSPERM
SEED
MORPHOLOGY**



RAPHE

RAPHE

HILUM SCAR

ANGIOSPERM SEED MORPHOLOGY

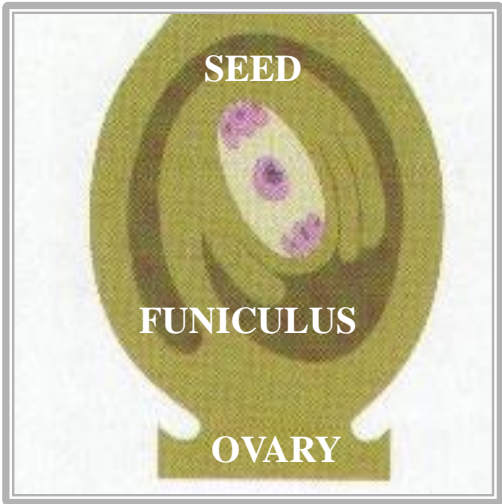


HILUM SCAR
DERIVED VIA
FUNICULUS

ANGIOSPERM
SEED MORPHOLOGY



TESTA



SEED

M

RAPHE

HILUM SCAR

RAPHE

MICROPYLE SCAR

**ANGIOSPERM
SEED MORPHOLOGY**



M

**MICROPYLE SCAR
DERIVED VIA
POLLEN TUBE**

**ANGIOSPERM
SEED MORPHOLOGY**



TESTA

SEED

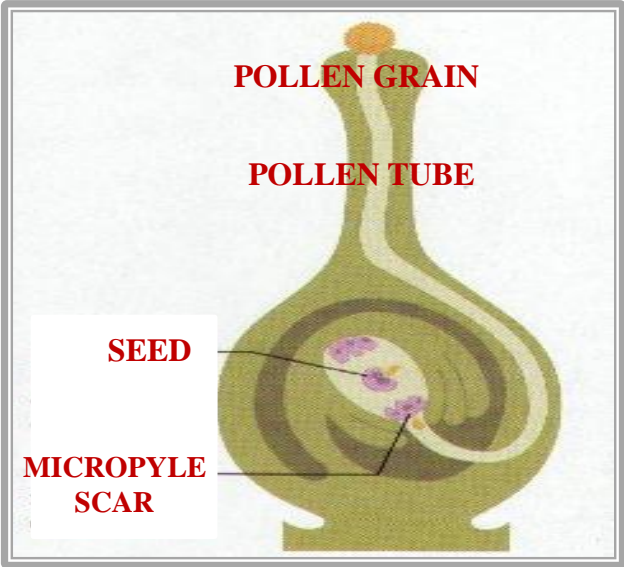


RAPHE

MICROPYLE SCAR

HILUM SCAR

RAPHE



POLLEN GRAIN

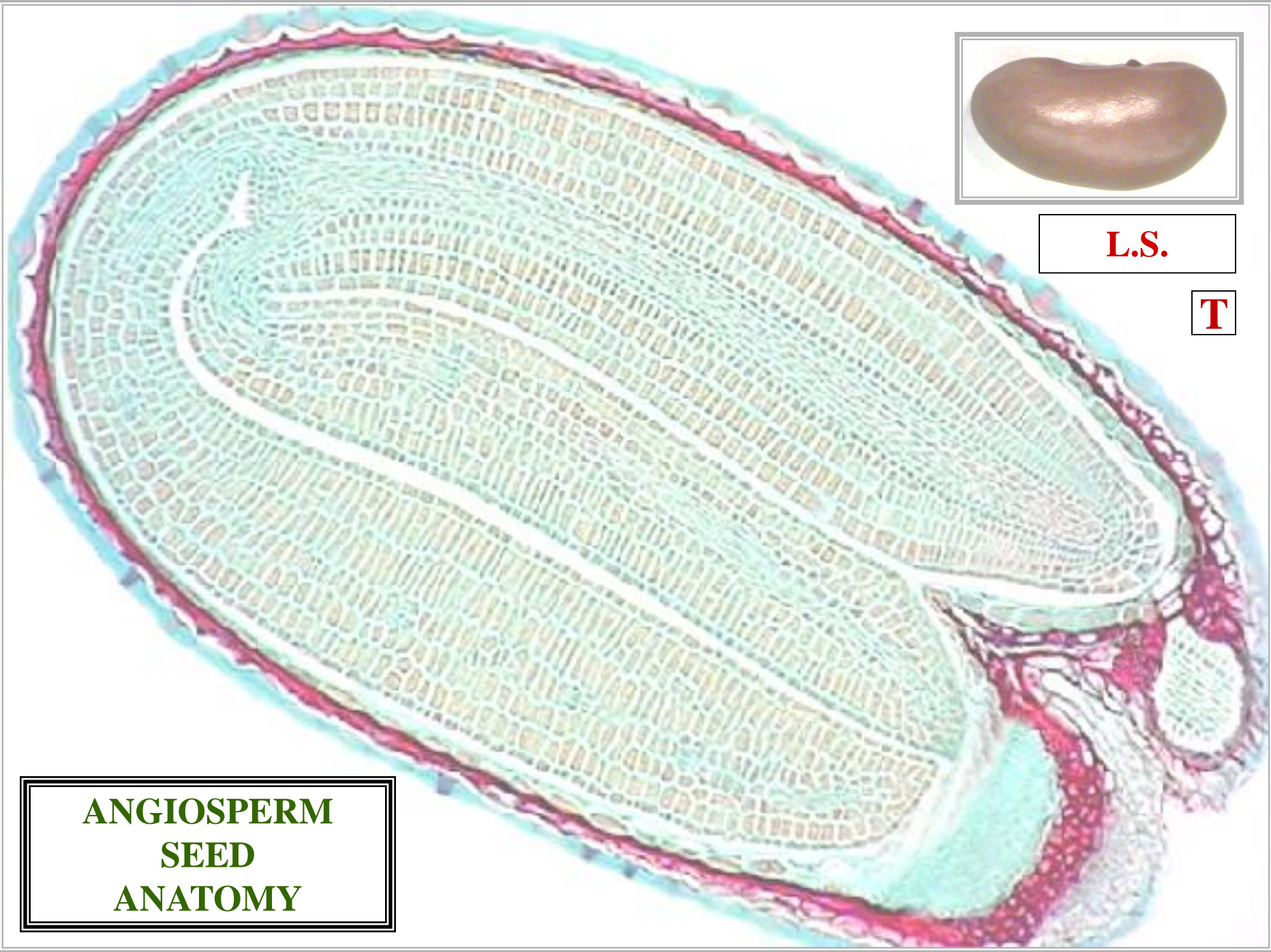
POLLEN TUBE

SEED

MICROPYLE SCAR



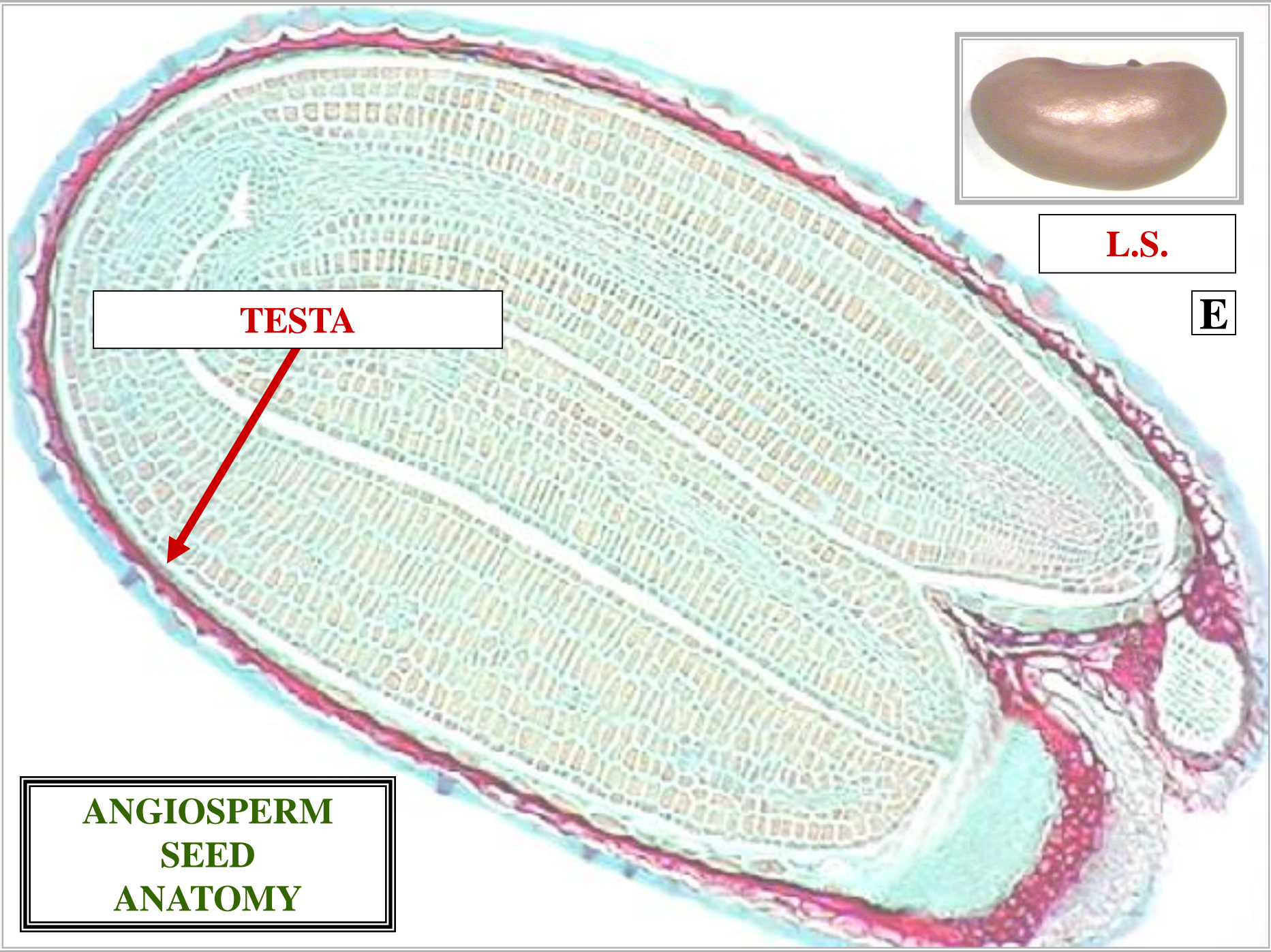
ANGIOSPERM SEED ANATOMY



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**ANGIOSPERM
SEED
ANATOMY**



L.S.

E

TESTA



**ANGIOSPERM
SEED
ANATOMY**

EMBRYO

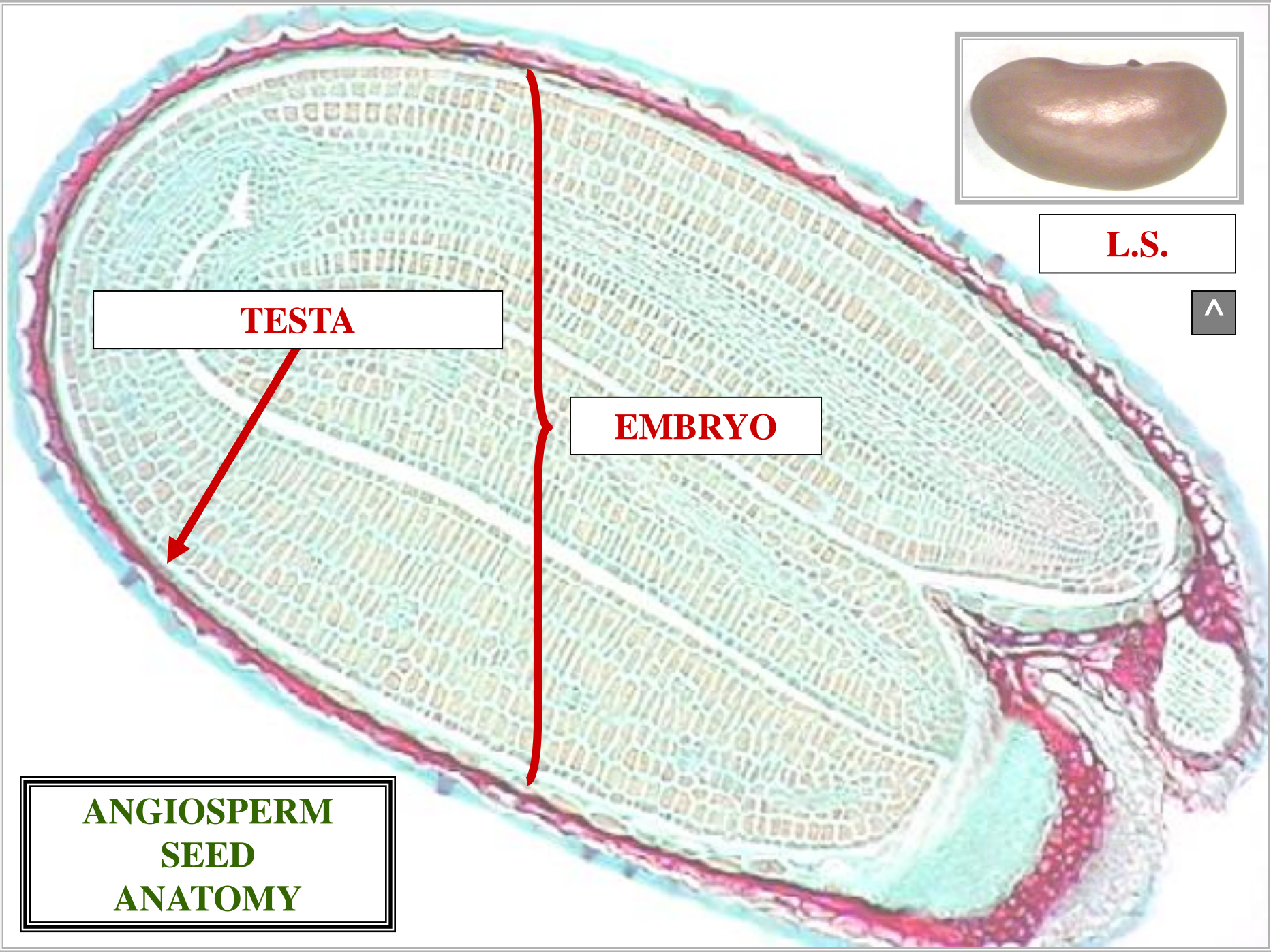
SEED ANATOMY EMBRYO



E

**YOUNG
SPOROPHYTE**

**SEED ANATOMY
EMBRYO**



L.S.



TESTA

EMBRYO

ANGIOSPERM
SEED
ANATOMY

ANGIOSPERM EMBRYOLOGY

EMBRYOLOGY



**ANGIOSPERM
EMBRYOLOGY**

**EMBRYO
DEVELOPMENT
&
STRUCTURE**

**ANGIOSPERM
EMBRYOLOGY**

EMBRYO DEVELOPMENT STAGES

**EMBRYO
DEVELOPMENT
STAGES**

GLOBULAR STAGE

**EMBRYO
DEVELOPMENT
STAGES**

**EMBRYO
DEVELOPMENT
STAGES**

**GLOBULAR STAGE
HEART STAGE**

**EMBRYO
DEVELOPMENT
STAGES**

**EMBRYO
DEVELOPMENT
STAGES**

GLOBULAR STAGE

HEART STAGE

TORPEDO STAGE

**EMBRYO
DEVELOPMENT
STAGES**



**EMBRYO
DEVELOPMENT
STAGES**

GLOBULAR STAGE

HEART STAGE

TORPEDO STAGE

MATURE STAGE

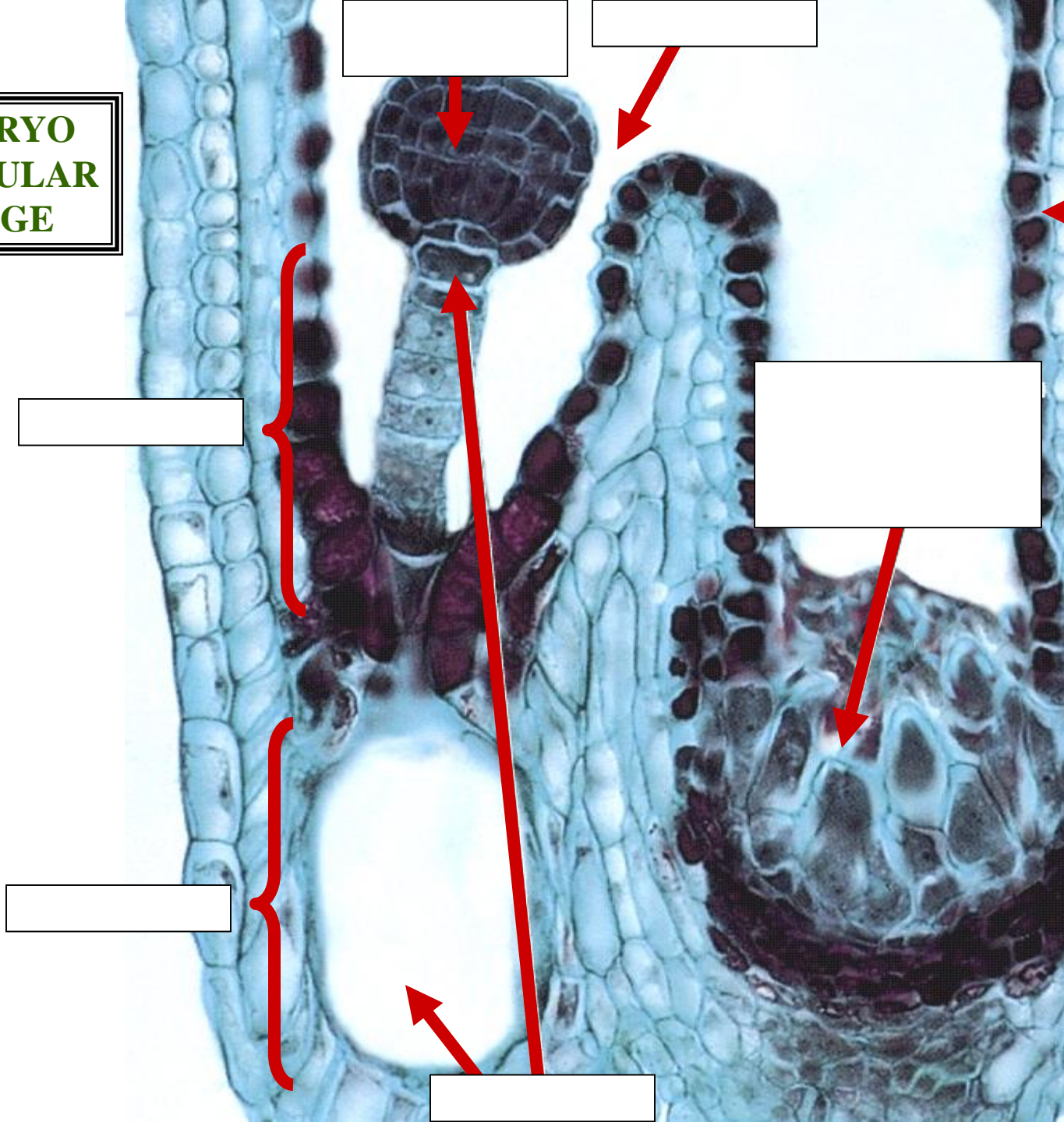
**EMBRYO
DEVELOPMENT
STAGES**



GLOBULAR EMBRYO STAGE

T

**EMBRYO
GLOBULAR
STAGE**



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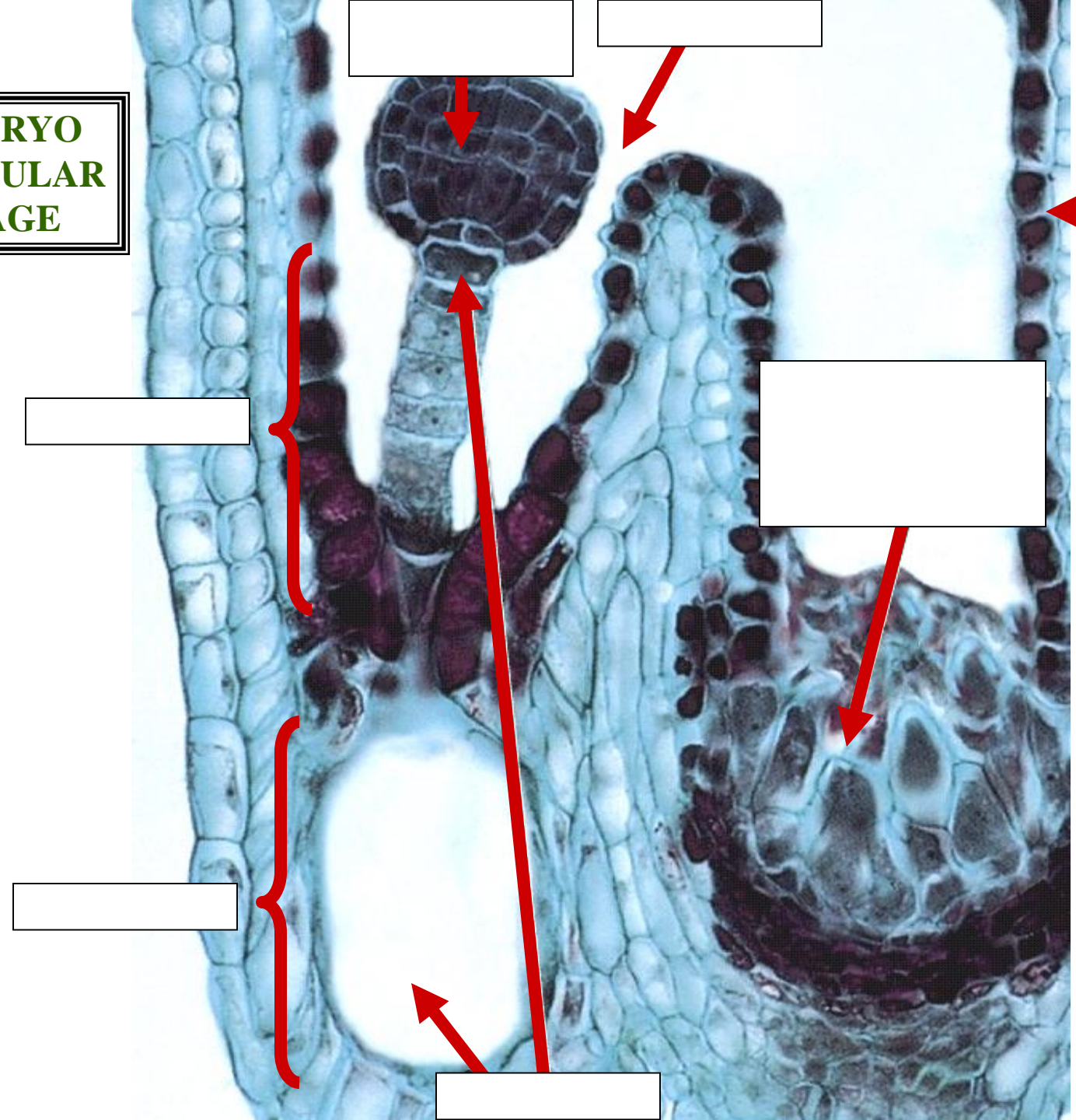
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**EMBRYO
GLOBULAR
STAGE**



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**EMBRYO
GLOBULAR
STAGE**

**GLOBULAR
EMBRYO**

TESTA

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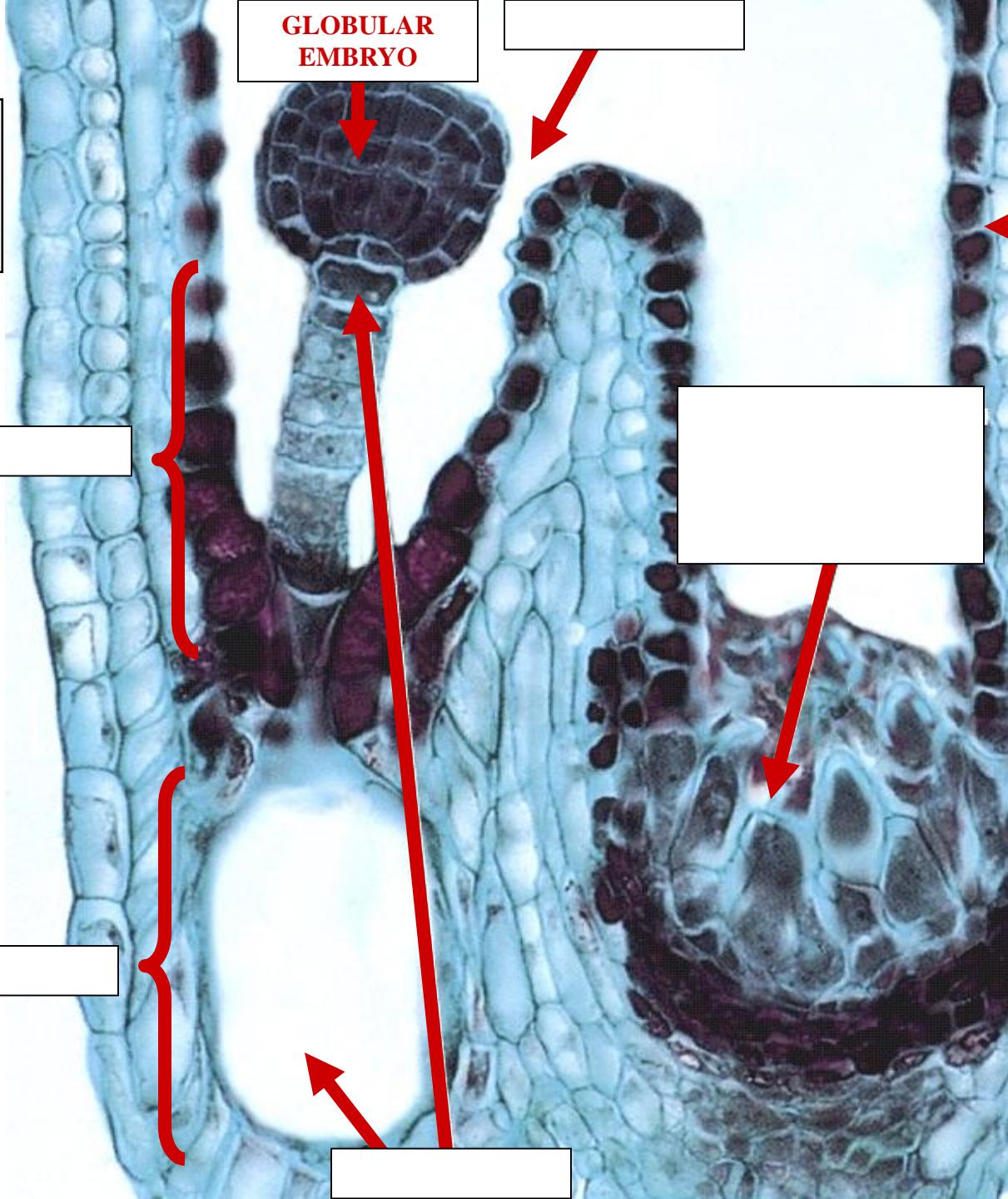
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ENDOSPERM



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ENDOSPERM

**EMBRYO
NUTRIENT TISSUE**

ENDOSPERM

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**EMBRYO
GLOBULAR
STAGE**

**GLOBULAR
EMBRYO**

ENDOSPERM

TESTA

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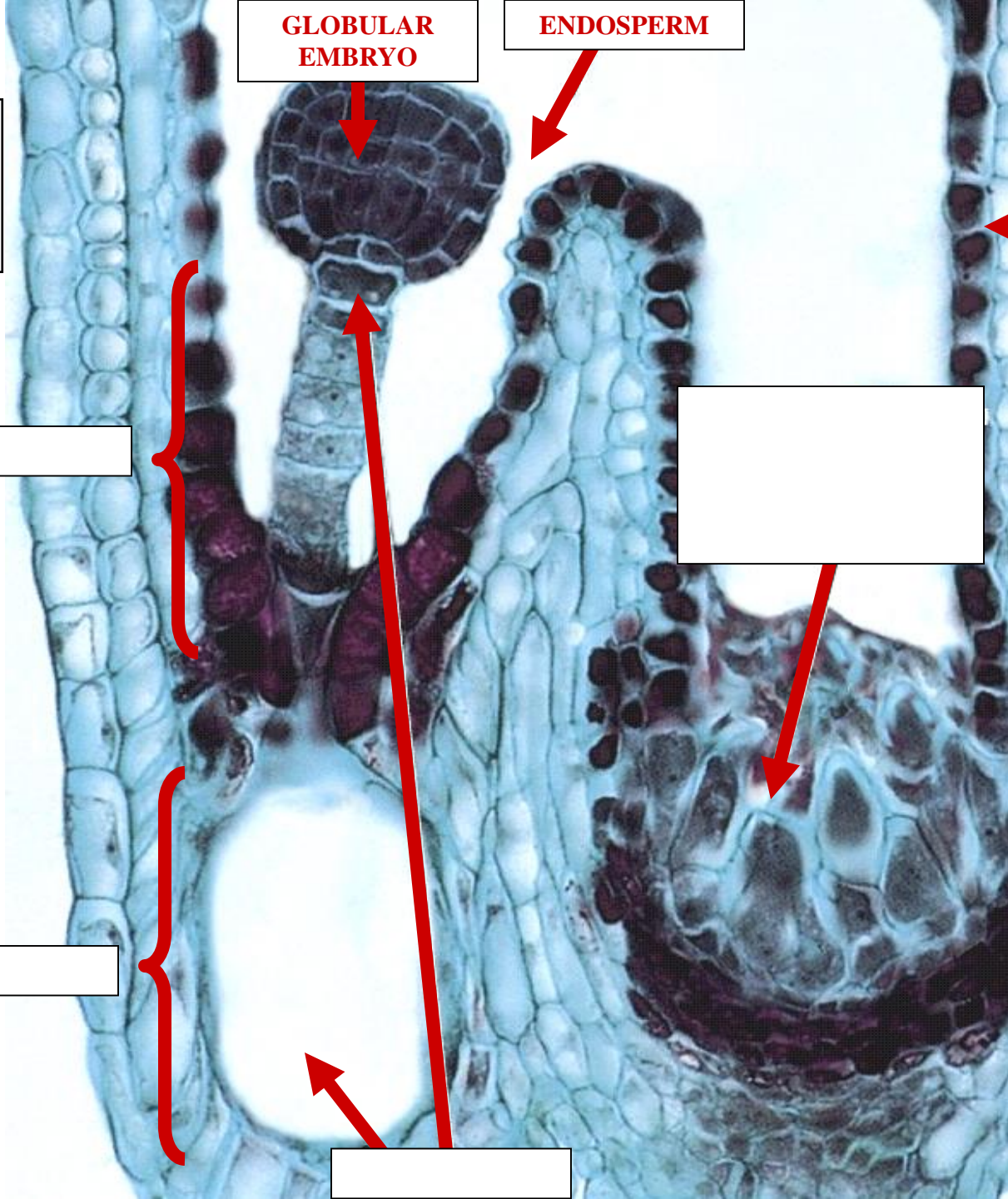
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SUSPENSOR



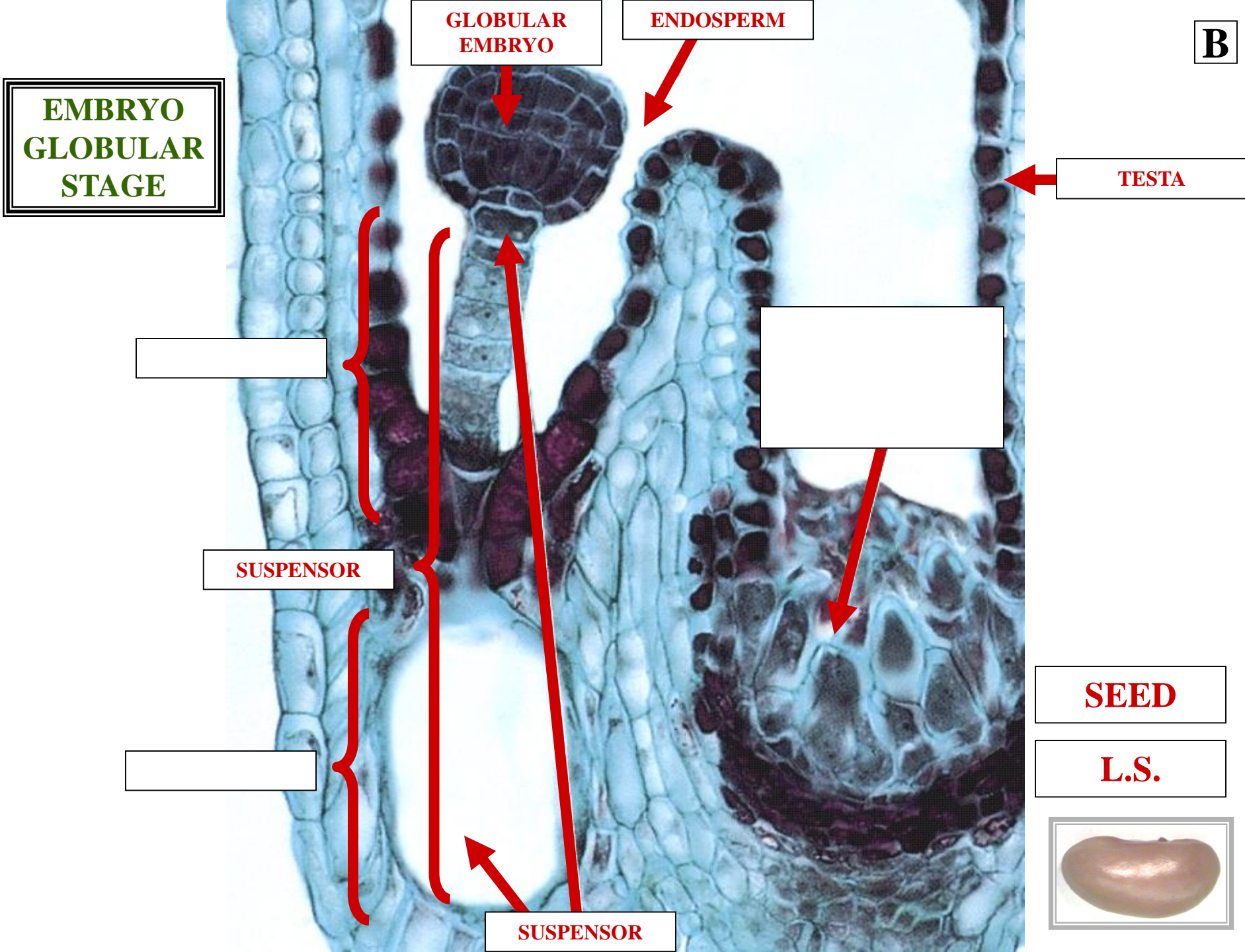
SUSPENSOR

**EMBEDS EMBRYO
INTO
ENDOSPERM**

SUSPENSOR

B

**EMBRYO
GLOBULAR
STAGE**

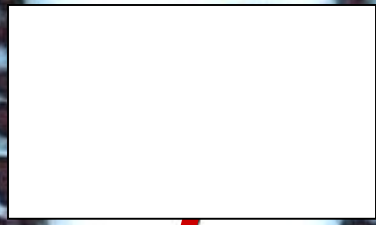


**GLOBULAR
EMBRYO**

ENDOSPERM

TESTA

SUSPENSOR



SEED

L.S.



SUSPENSOR

**SUSPENSOR
BASAL CELL**

**SUSPENSOR
BASAL CELL**



B

**LARGE LOWERMOST
SUSPENSOR CELL**

**SUSPENSOR
BASAL CELL**

S

**EMBRYO
GLOBULAR
STAGE**

**GLOBULAR
EMBRYO**

ENDOSPERM

TESTA

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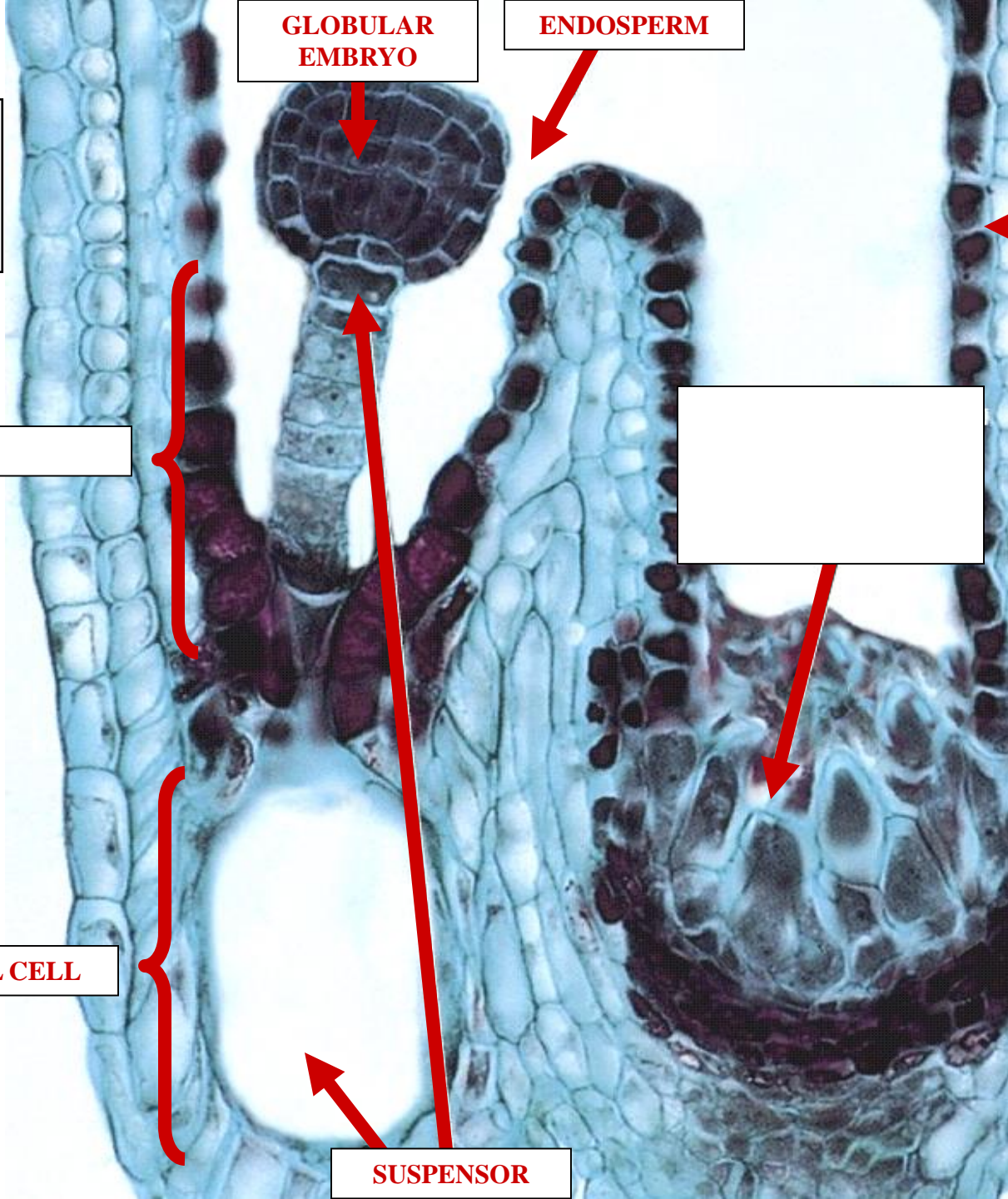
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BASAL CELL

SEED

L.S.

SUSPENSOR



SUSPENSOR SERIES CELLS

**SUSPENSOR
SERIES CELLS**

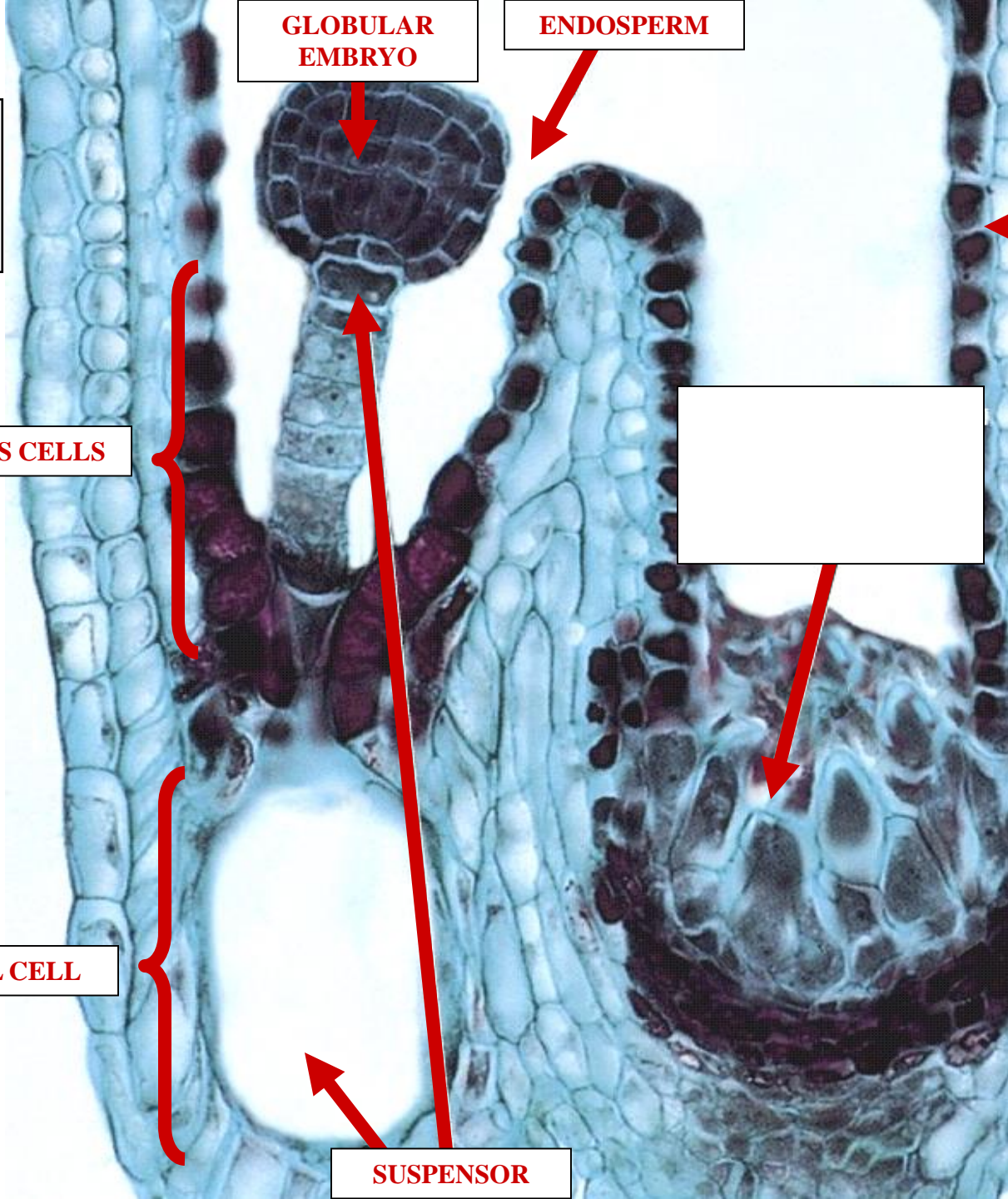


**SUSPENSOR CELLS
BETWEEN
BASAL CELL & EMBRYO**

**SUSPENSOR
SERIES CELLS**



**EMBRYO
GLOBULAR
STAGE**

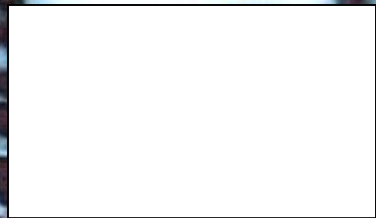


**GLOBULAR
EMBRYO**

ENDOSPERM

TESTA

SERIES CELLS



BASAL CELL

SUSPENSOR

SEED

L.S.

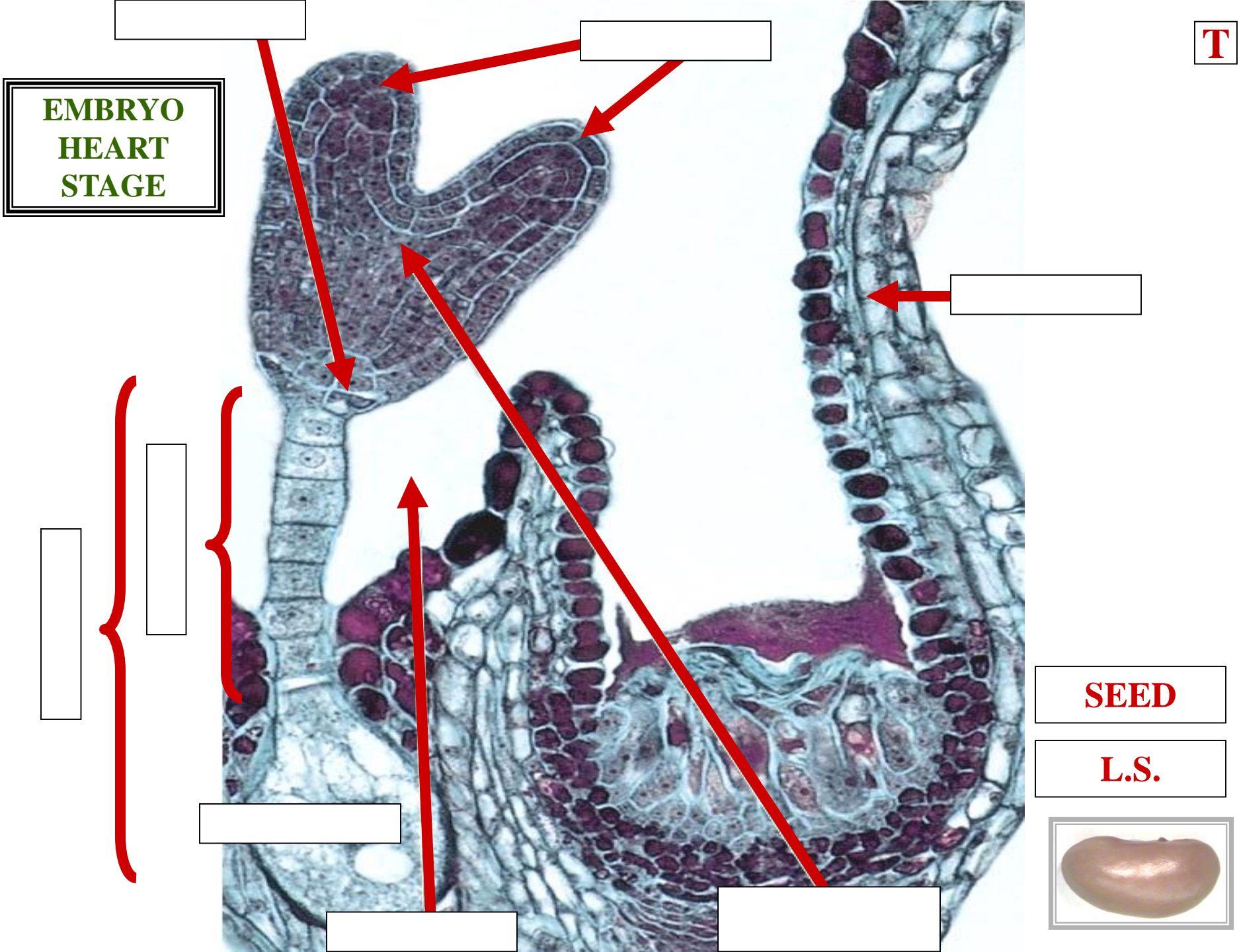




HEART EMBRYO STAGE

T

**EMBRYO
HEART
STAGE**

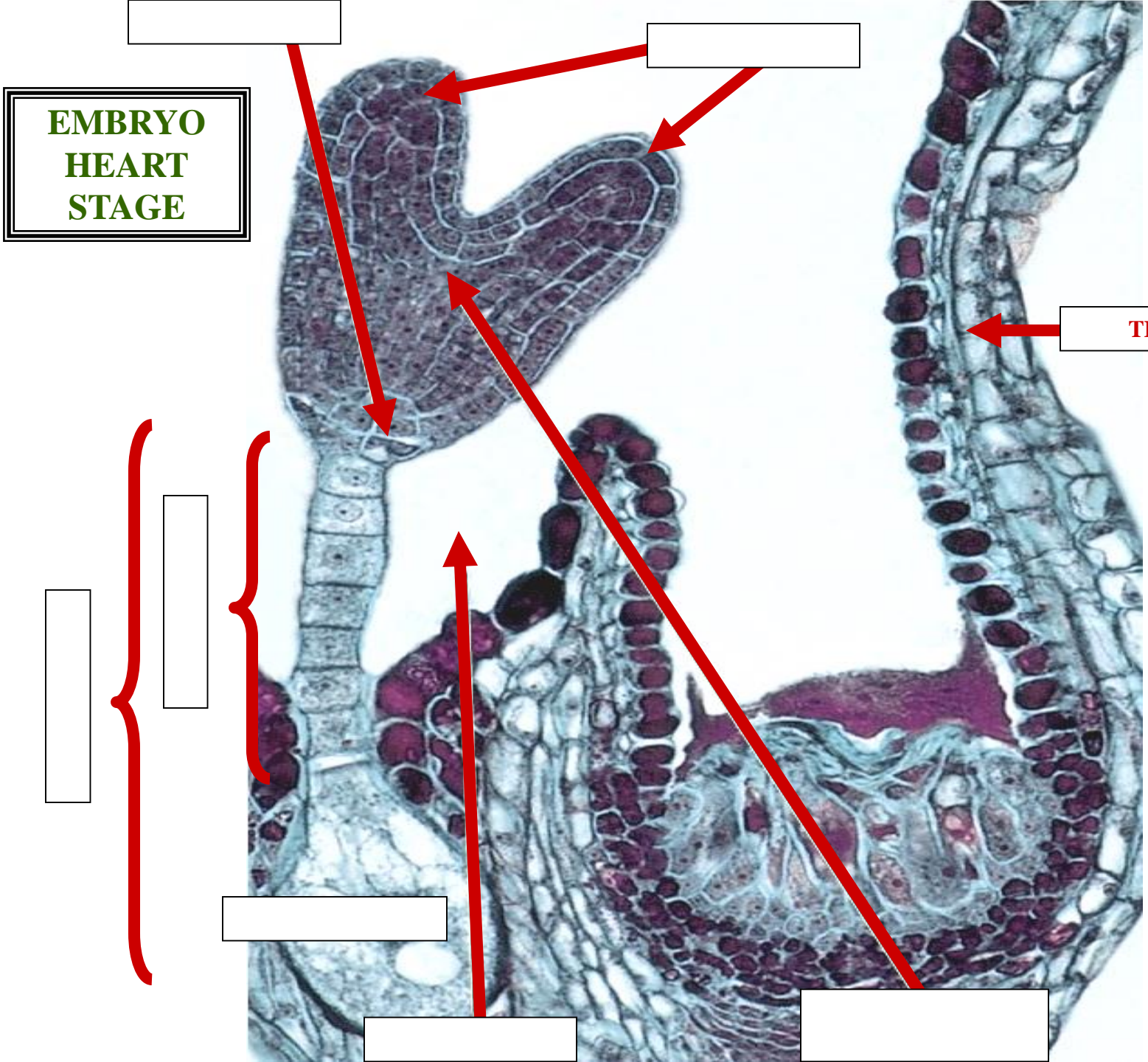


SEED

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**EMBRYO
HEART
STAGE**



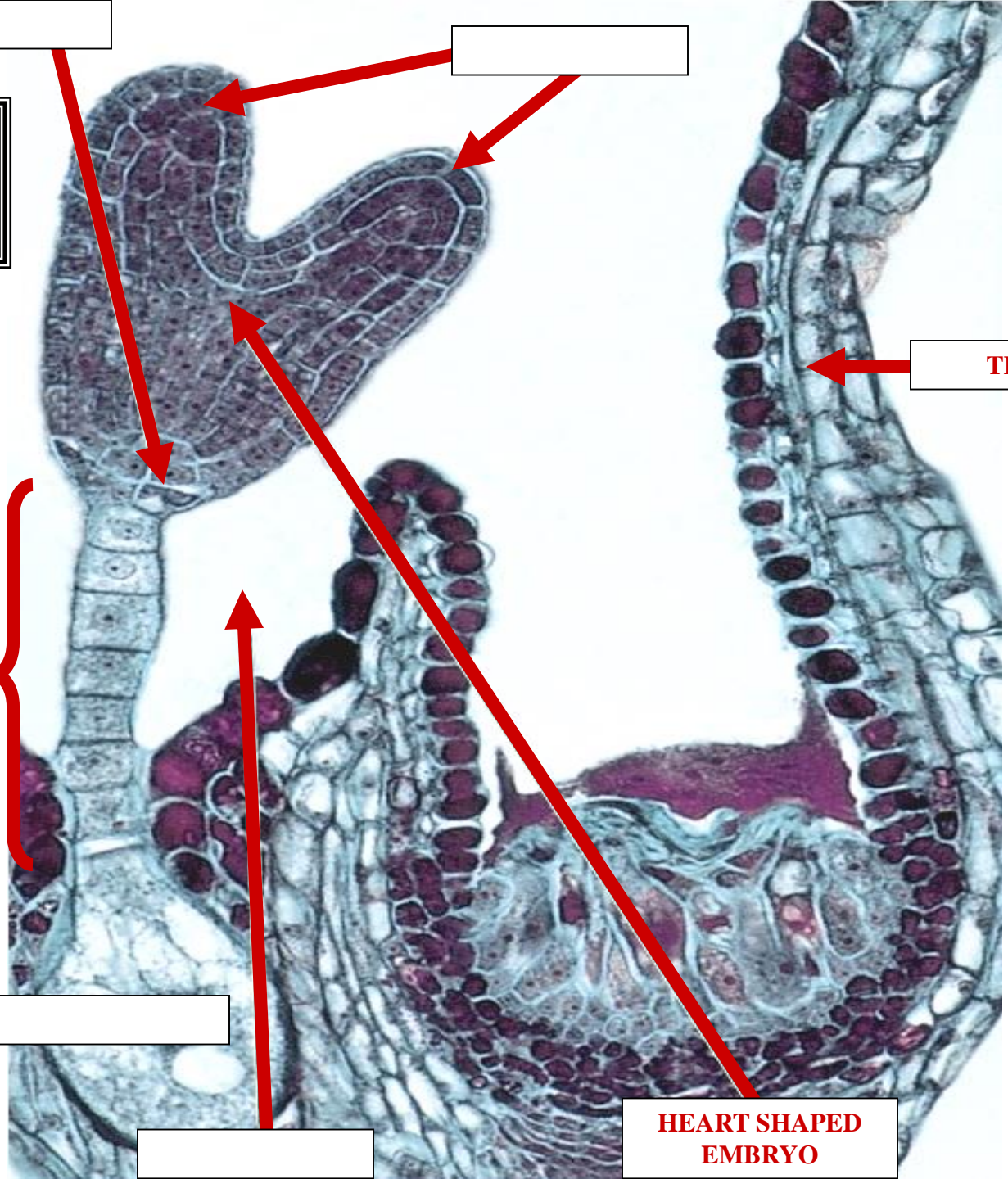
SEED

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**EMBRYO
HEART
STAGE**



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TESTA

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**HEART SHAPED
EMBRYO**

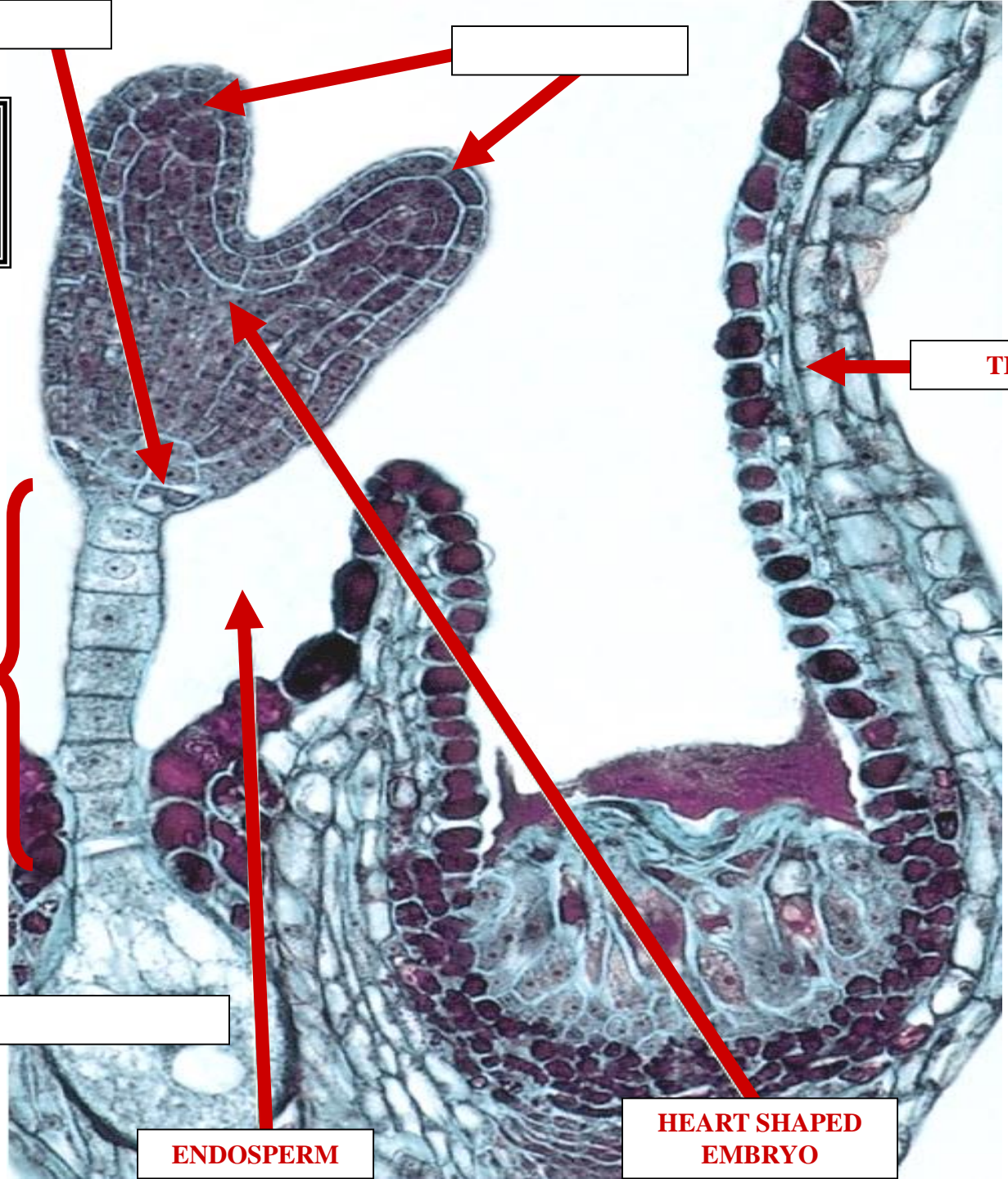
SEED

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C

**EMBRYO
HEART
STAGE**



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TESTA

SEED

L.S.

ENDOSPERM

**HEART SHAPED
EMBRYO**



COTYLEDONS

COTYLEDONS



C

EMBRYO LEAVES

COTYLEDONS

R

**EMBRYO
HEART
STAGE**

COTYLEDONS

TESTA

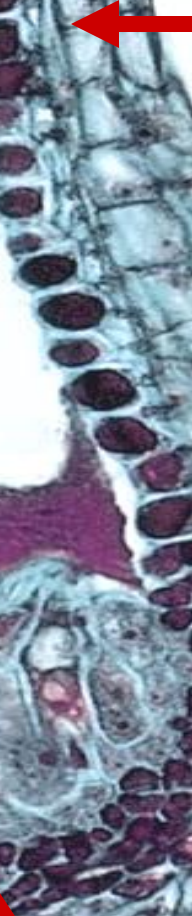
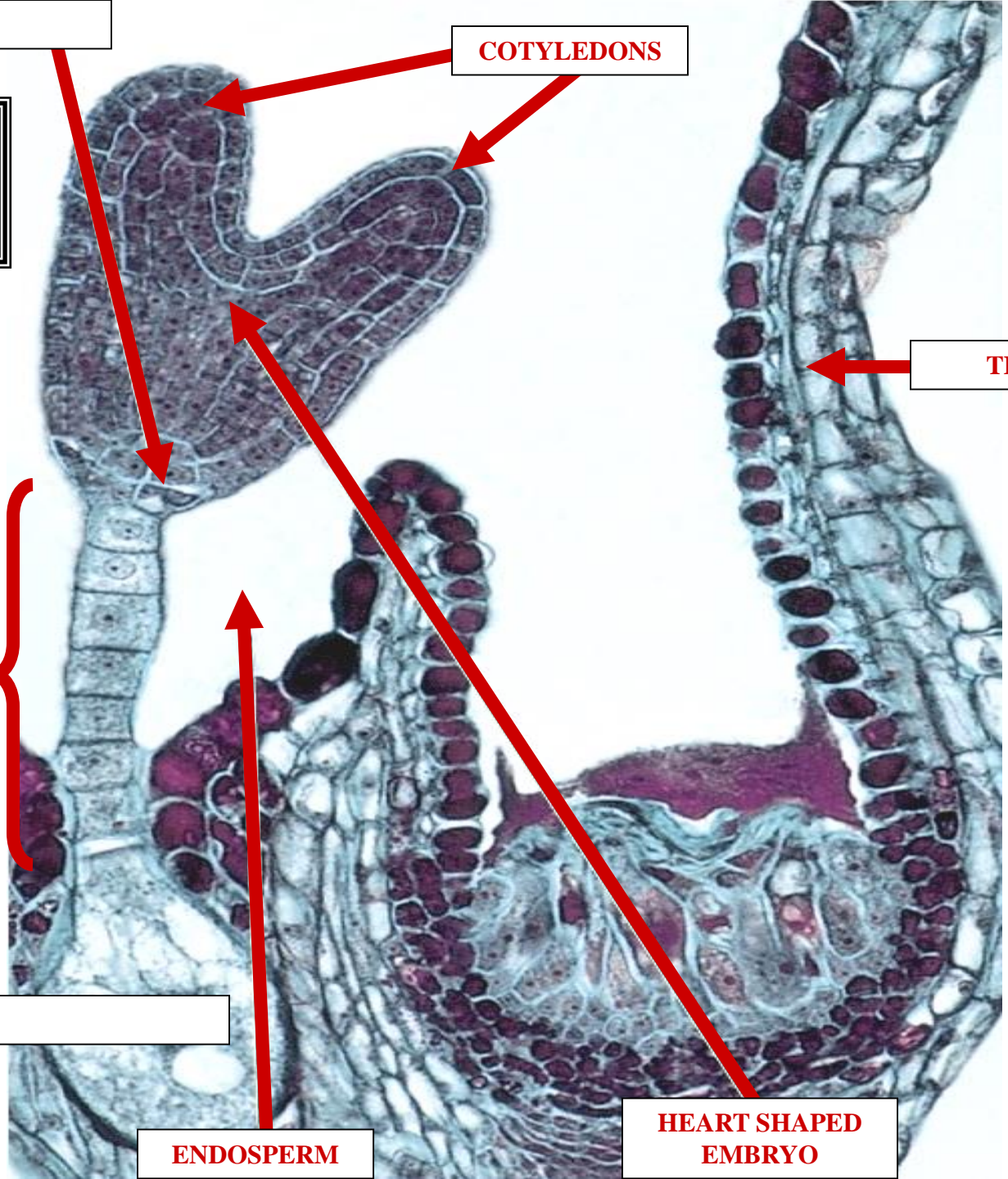
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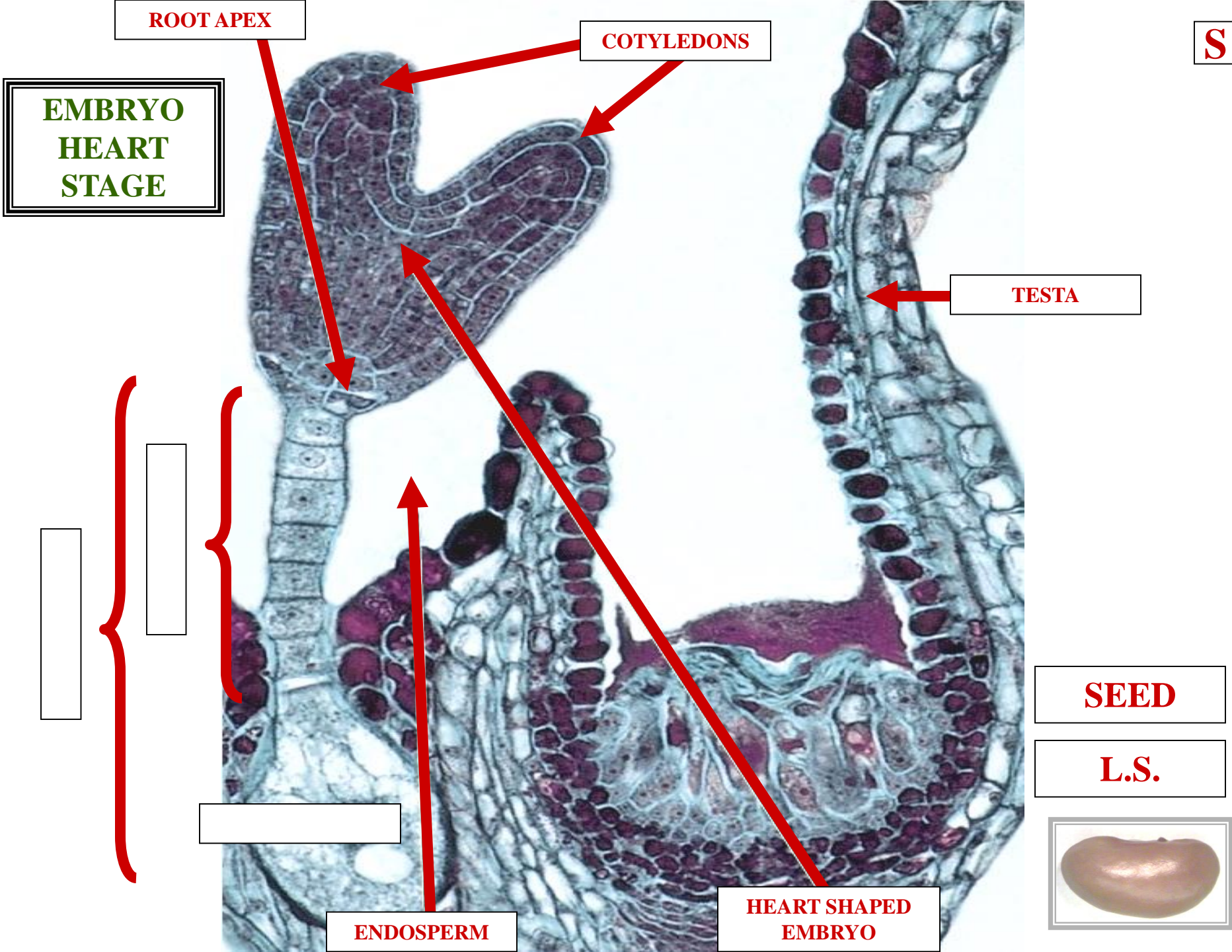
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ENDOSPERM

**HEART SHAPED
EMBRYO**





ROOT APEX

COTYLEDONS

TESTA

ENDOSPERM

HEART SHAPED EMBRYO

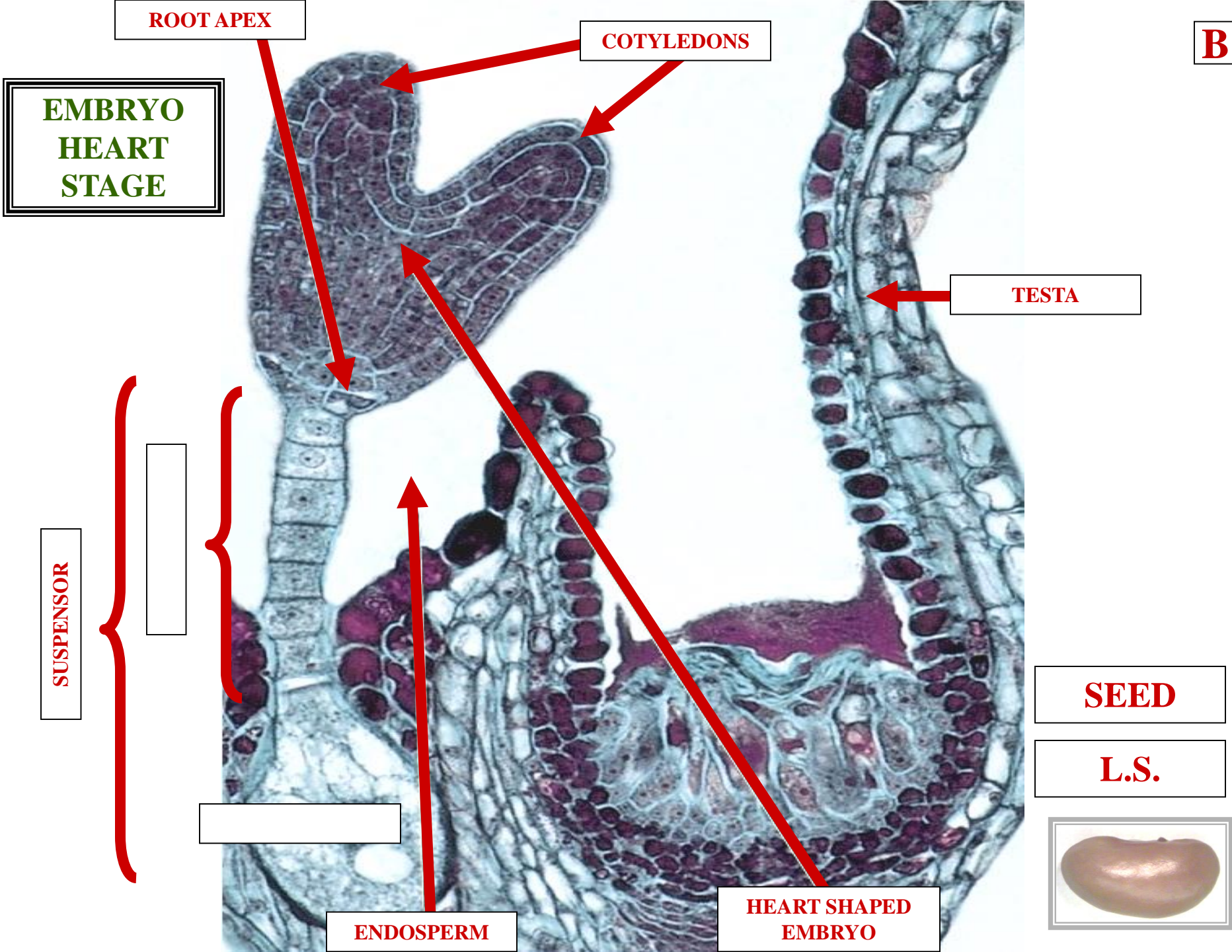
EMBRYO HEART STAGE

SEED

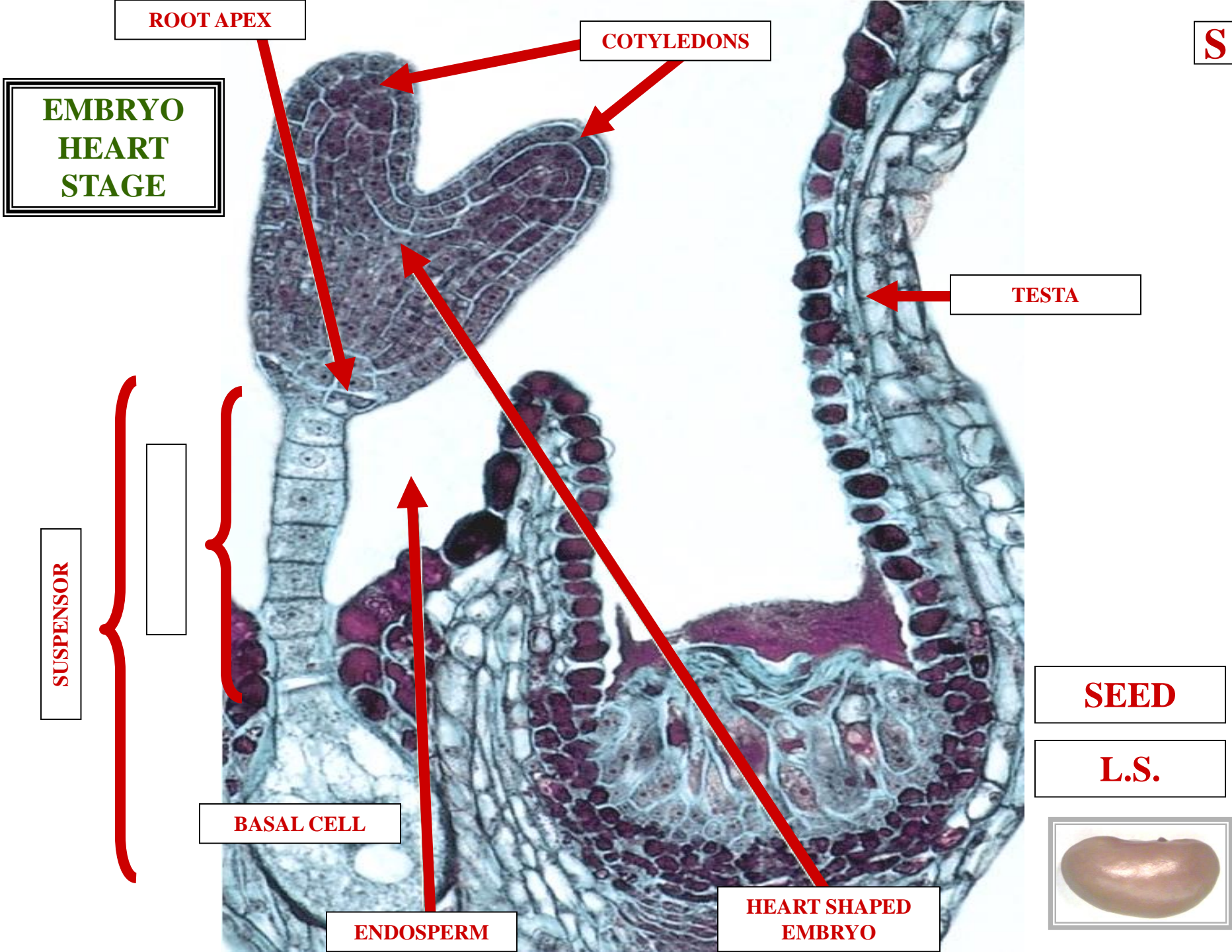
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ROOT APEX

COTYLEDONS

**EMBRYO
HEART
STAGE**

TESTA

SUSPENSOR

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BASAL CELL

ENDOSPERM

**HEART SHAPED
EMBRYO**

SEED

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ROOT APEX

COTYLEDONS

**EMBRYO
HEART
STAGE**

TESTA

SUSPENSOR

SERIES CELLS

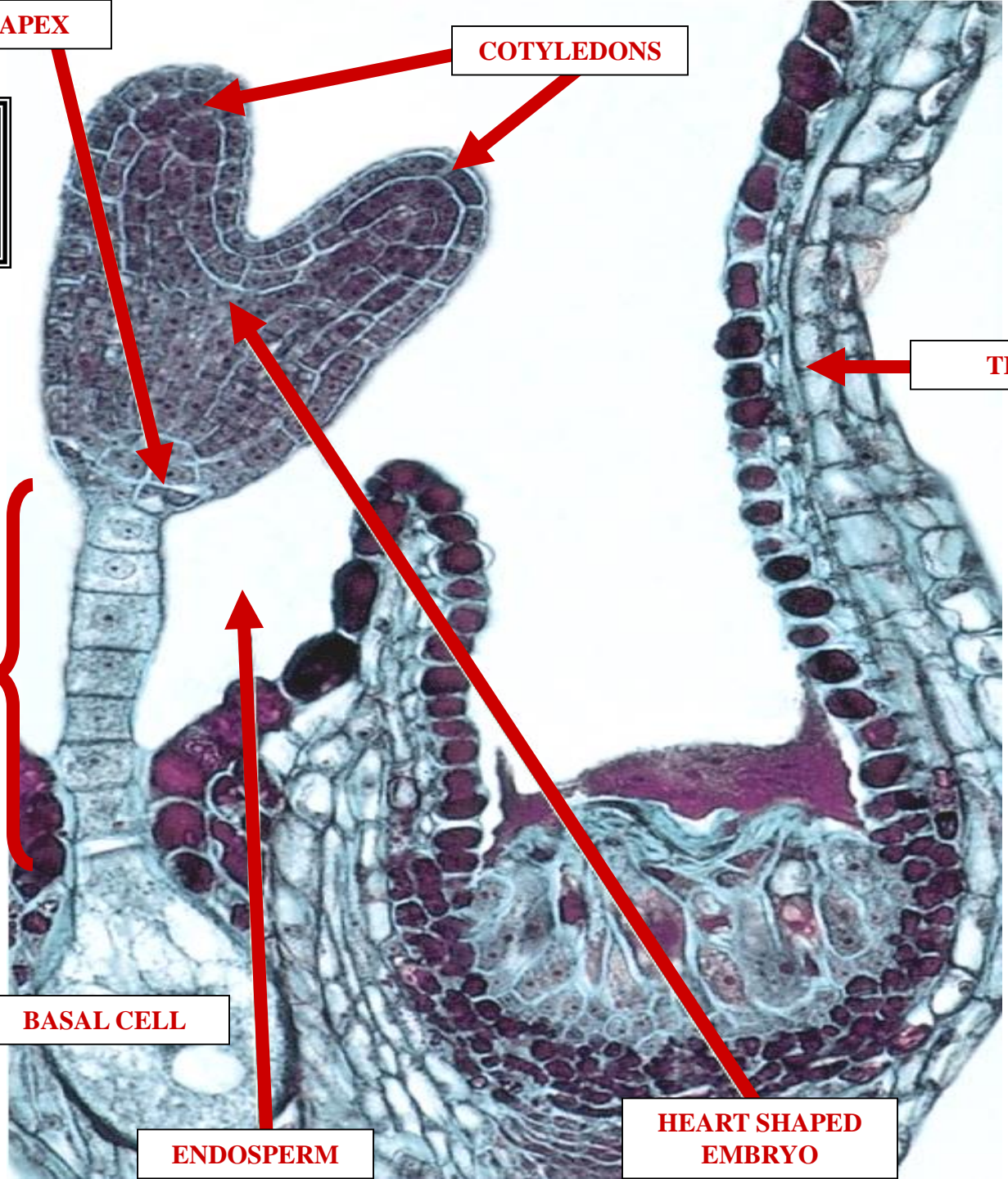
BASAL CELL

ENDOSPERM

**HEART SHAPED
EMBRYO**

SEED

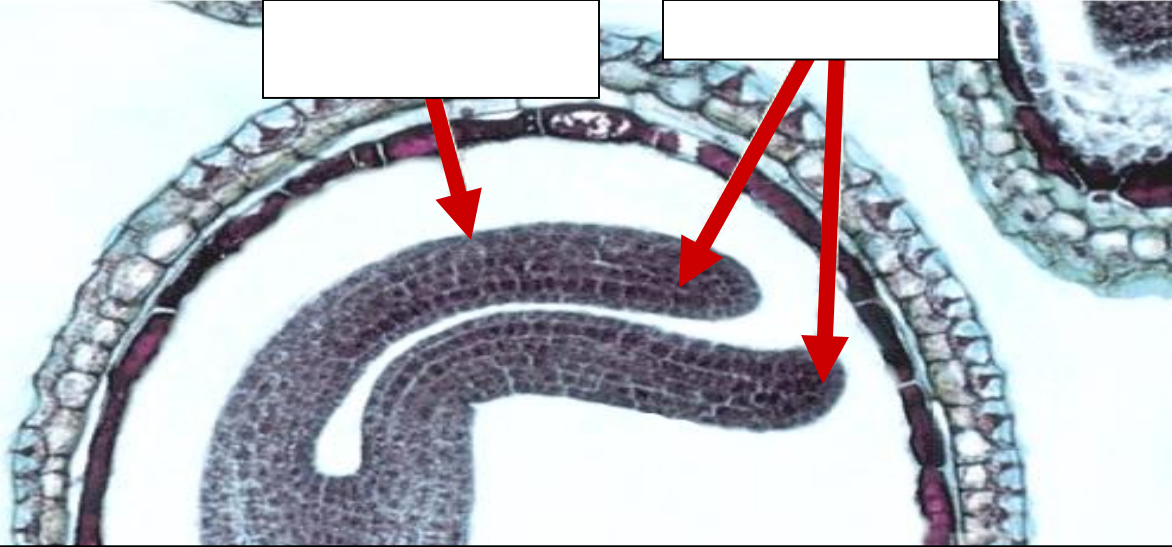
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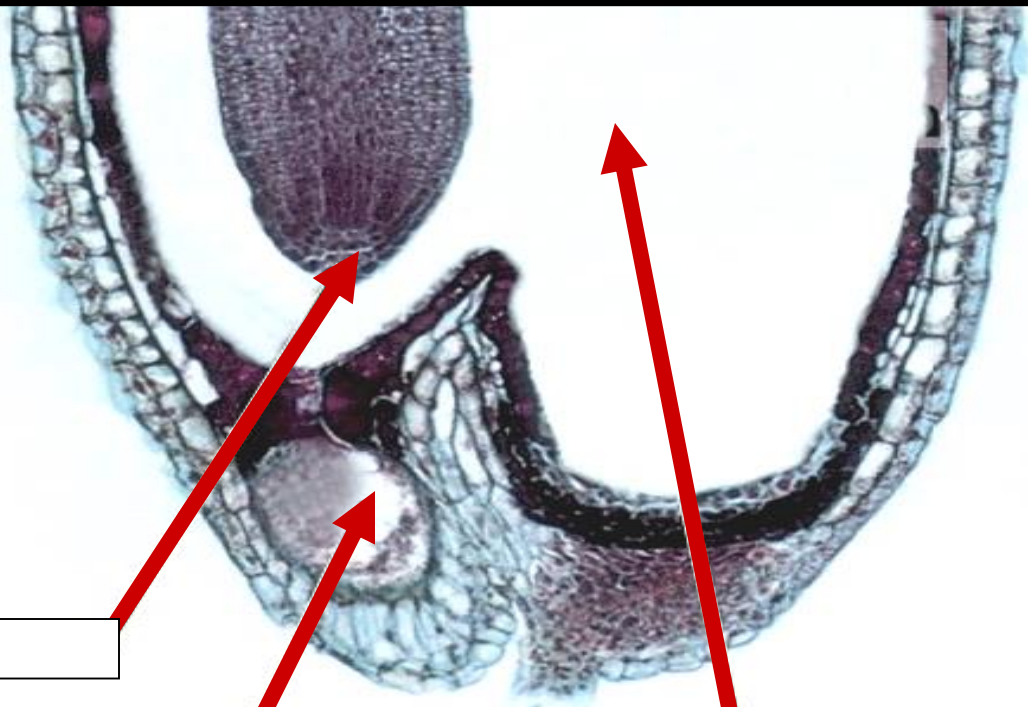


TORPEDO EMBRYO STAGE

**EMBRYO
TORPEDO
STAGE**



EMBRYO COTYLEDONS ENLARGE



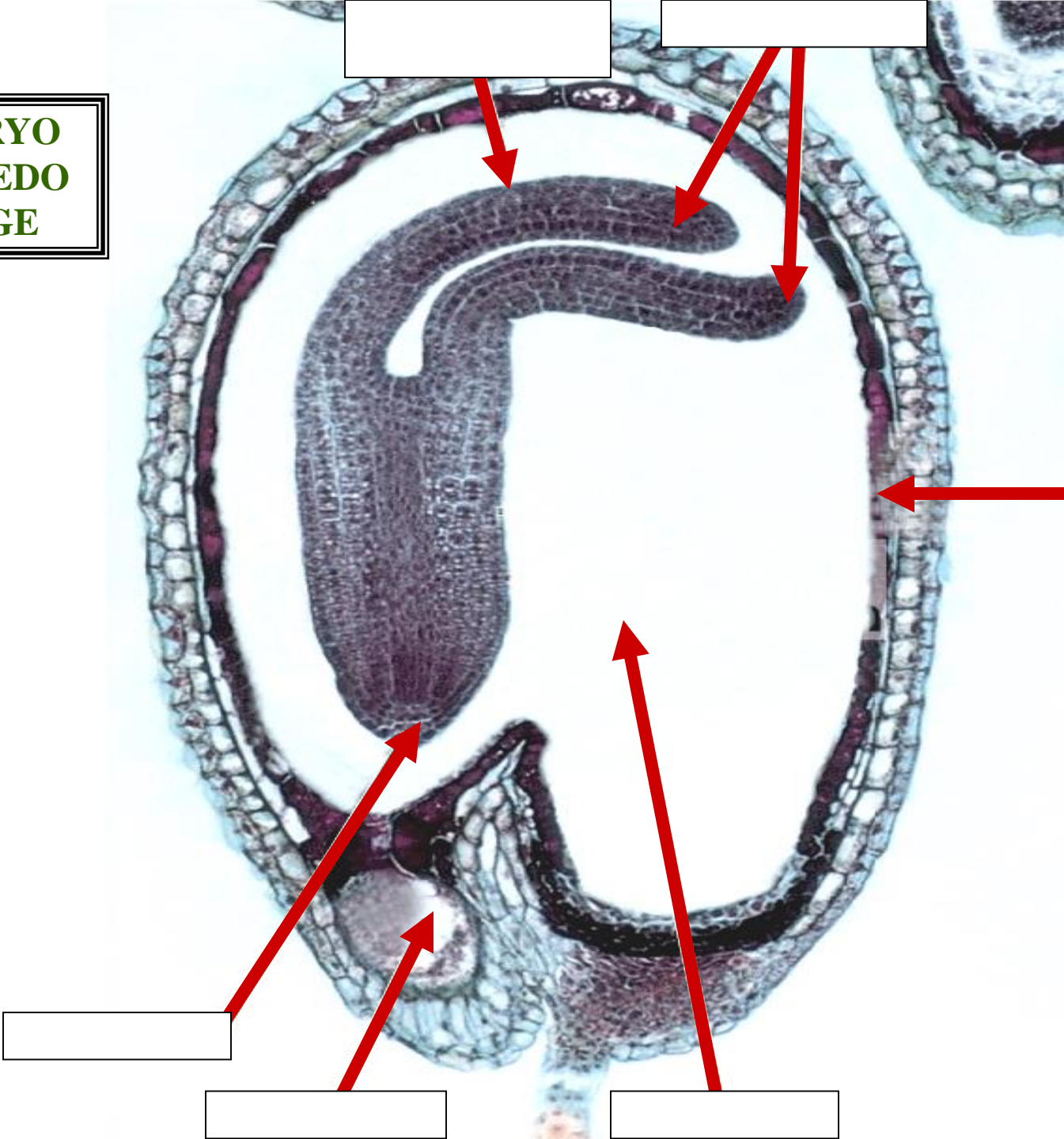
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**EMBRYO
TORPEDO
STAGE**



TESTA

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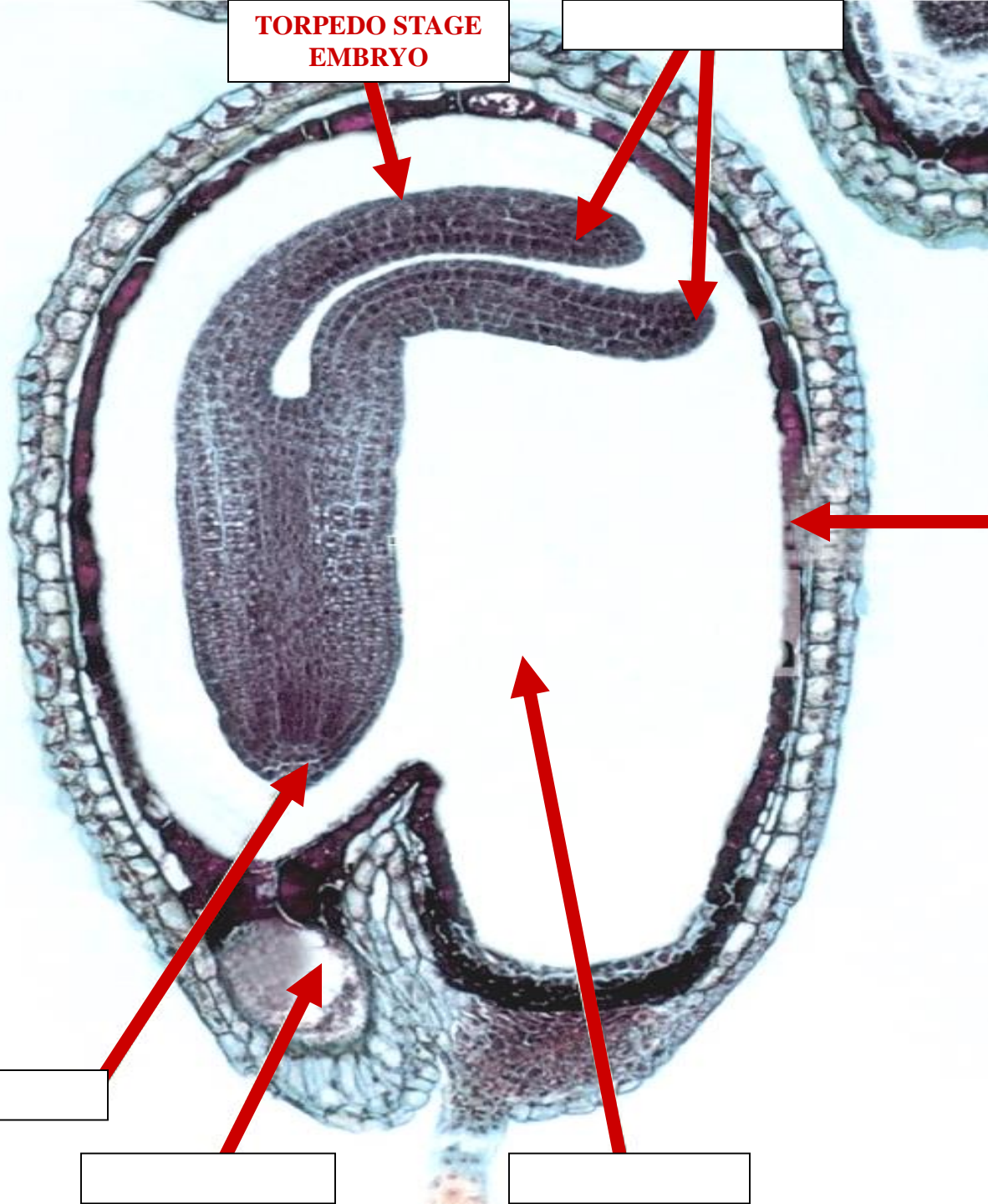
**EMBRYO
TORPEDO
STAGE**

**TORPEDO STAGE
EMBRYO**

TESTA

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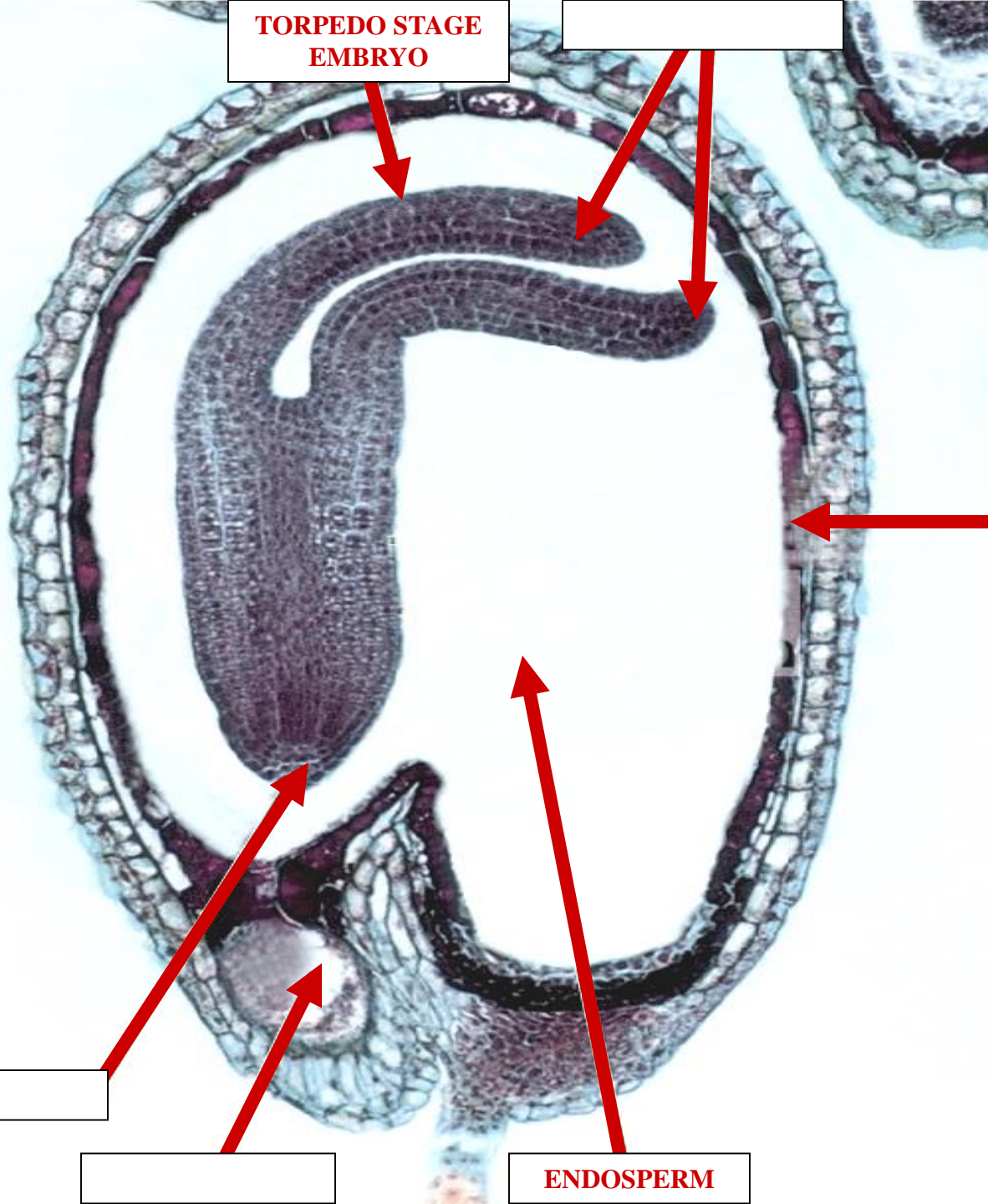
**EMBRYO
TORPEDO
STAGE**

**TORPEDO STAGE
EMBRYO**

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TESTA

SEED

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ENDOSPERM

**EMBRYO
TORPEDO
STAGE**

**TORPEDO STAGE
EMBRYO**

COTYLEDONS

EMBRYO COTYLEDONS ENLARGE

TESTA

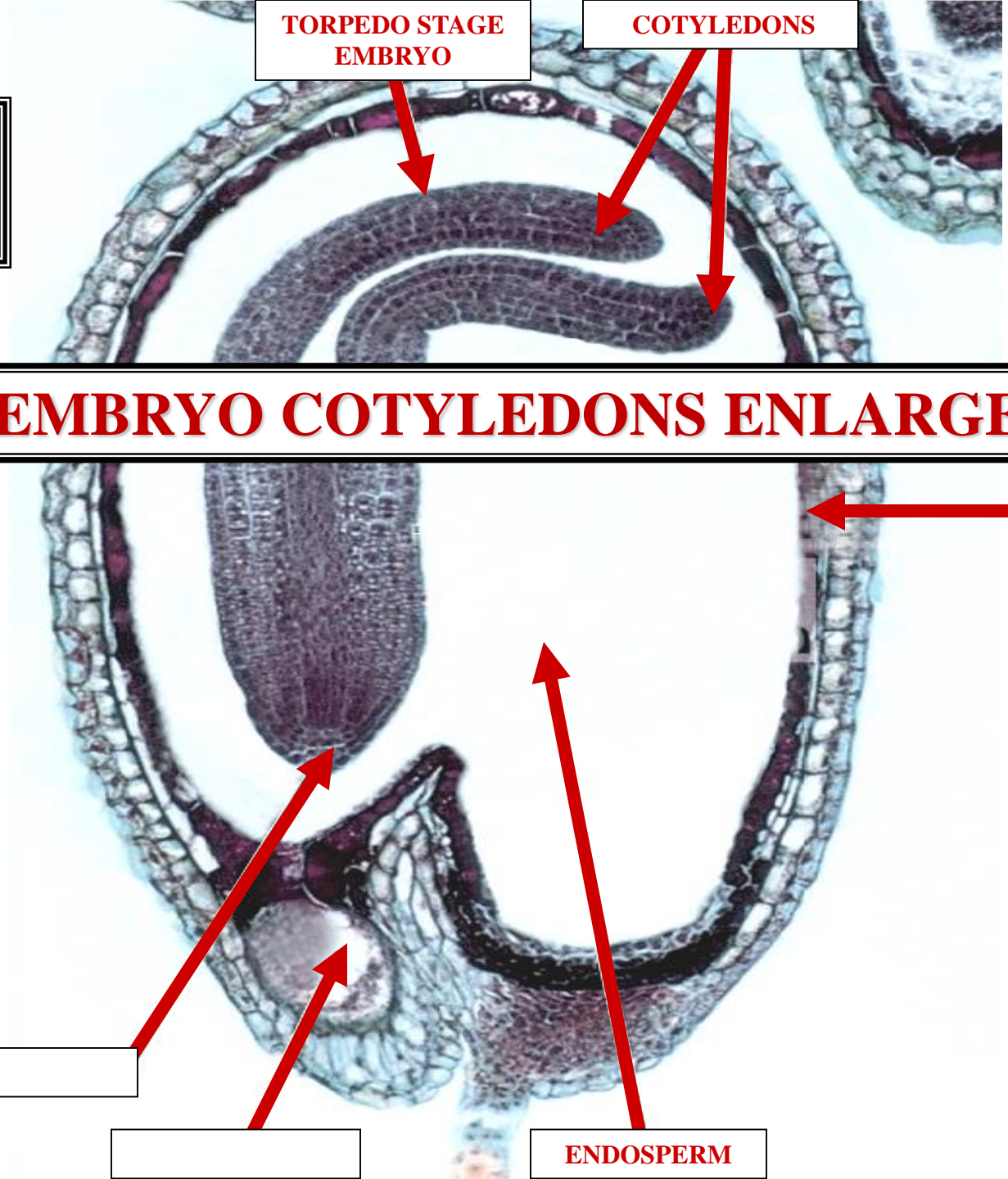
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ENDOSPERM



**EMBRYO
TORPEDO
STAGE**

**TORPEDO STAGE
EMBRYO**

COTYLEDONS

COTYLEDONS ABSORB ENDOSPERM

TESTA

SEED

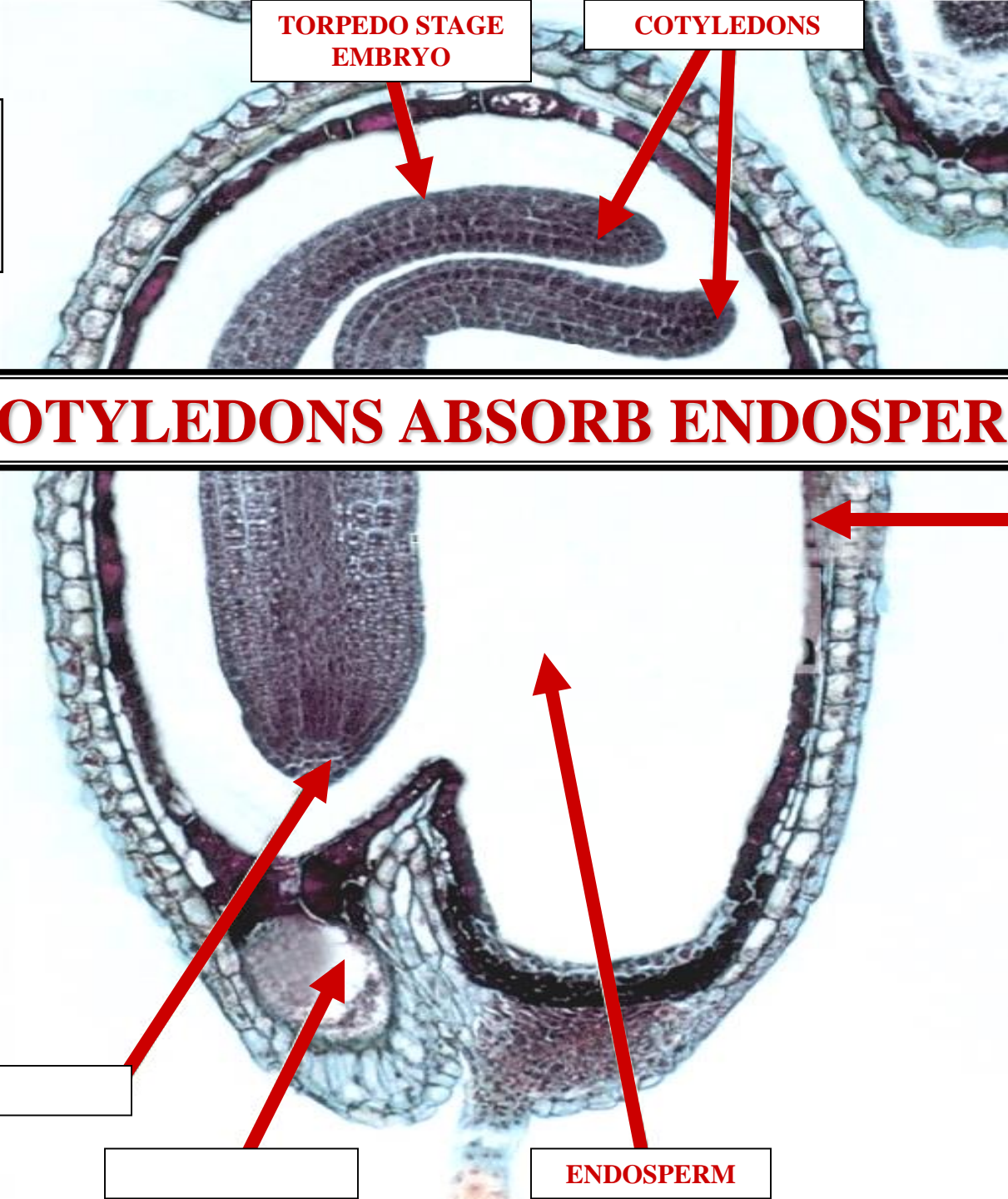
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ENDOSPERM



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**EMBRYO
TORPEDO
STAGE**

**TORPEDO STAGE
EMBRYO**

COTYLEDONS

TESTA

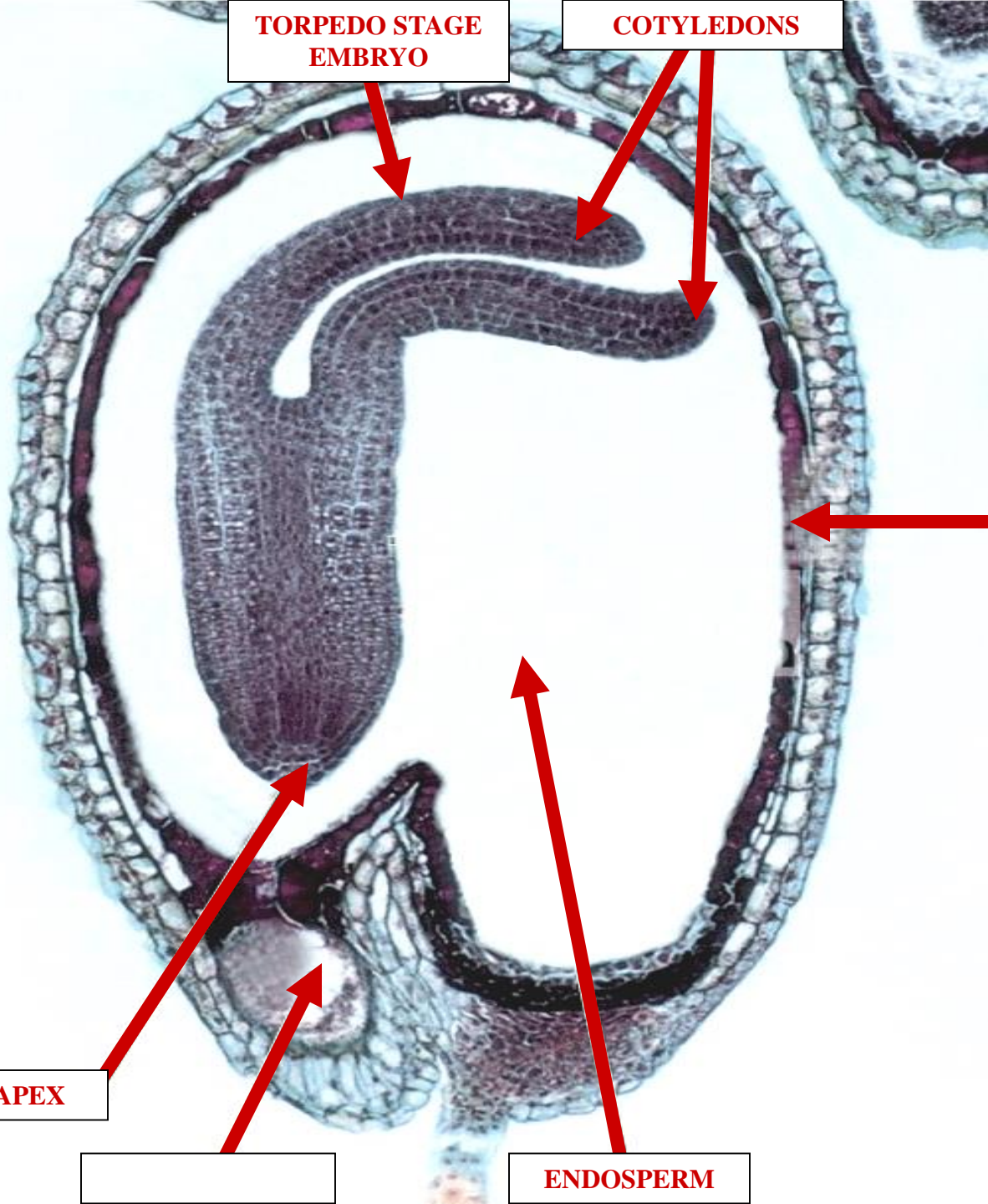
SEED

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ROOT APEX

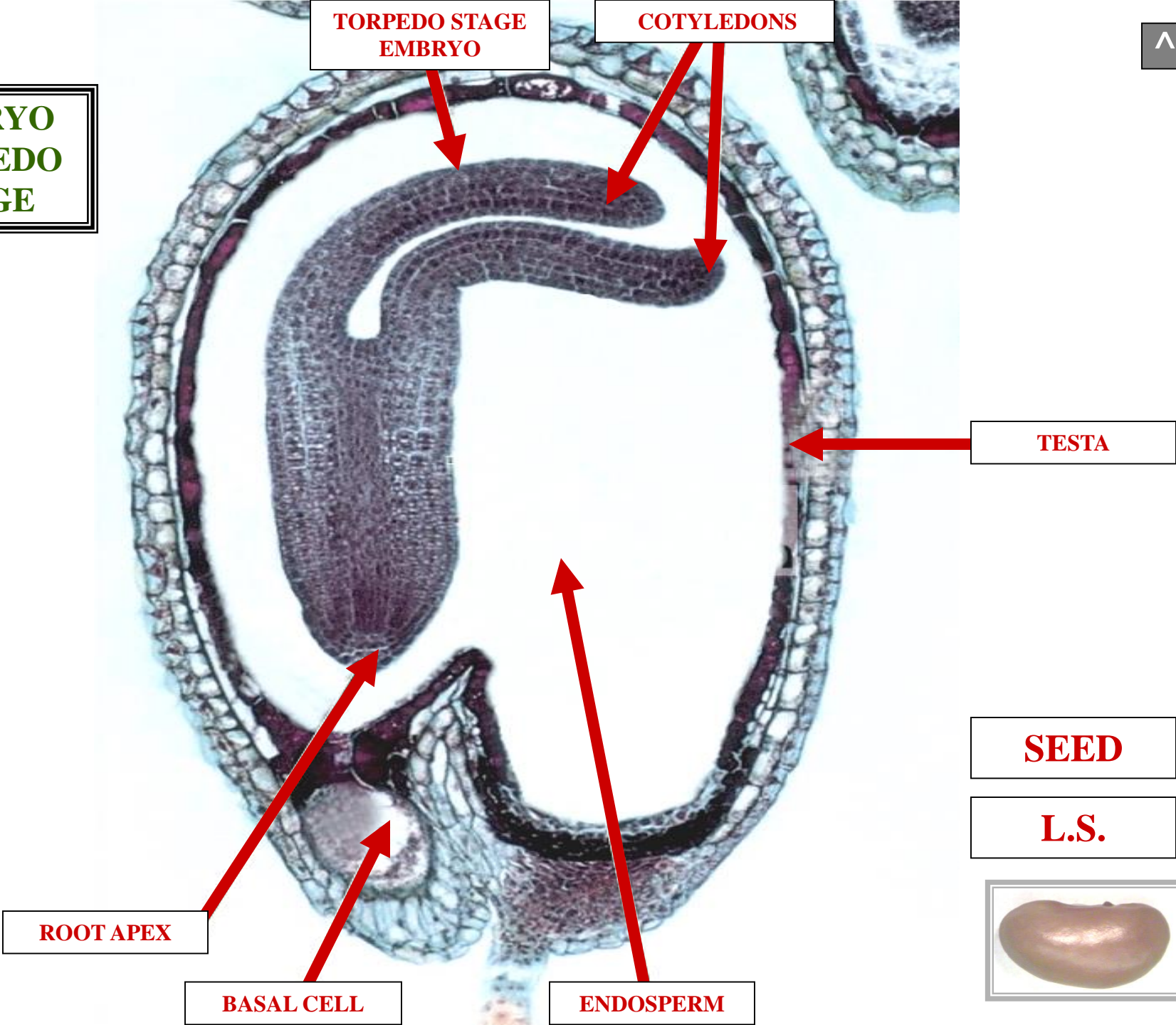
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ENDOSPERM





**EMBRYO
TORPEDO
STAGE**





MATURE EMBRYO STAGE



DICOT EMBRYO



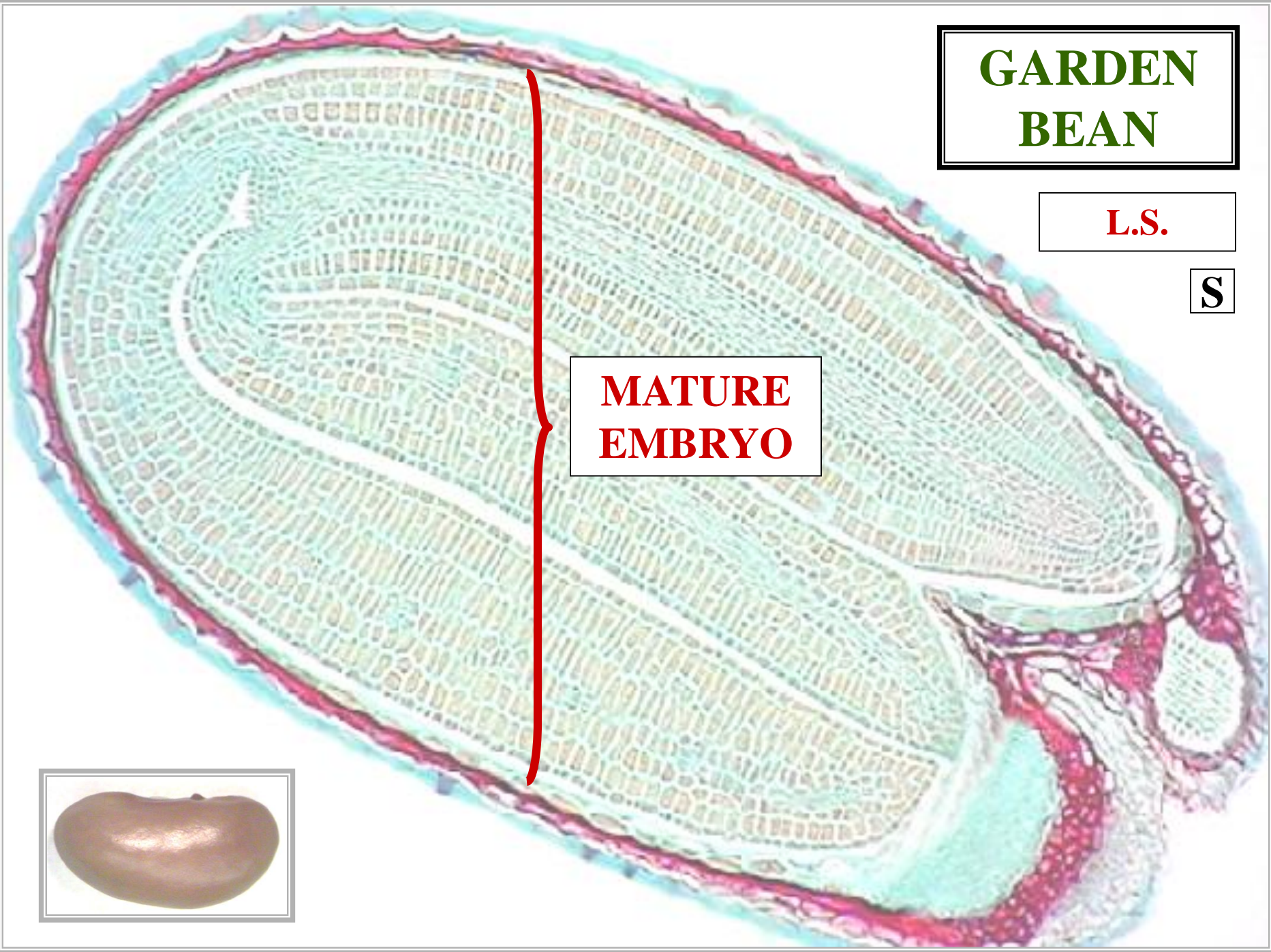
**GARDEN
BEAN**

GARDEN BEAN

L.S.

S

MATURE EMBRYO



STEM

APICAL MERSTEM

**STEM
APICAL MERISTEM**



**STEM
GROWTH REGION**

**STEM
APICAL MERISTEM**

GARDEN BEAN

L.S.

C

STEM
APICAL
MERISTEM



EMBRYO



GARDEN BEAN

L.S.

H

STEM
APICAL
MERISTEM



COTYLEDON

COTYLEDON

EMBRYO



HYPOCOTYL



H

HYPOCOTYL

**DICOT EMBRYO
STEM**

HYPOCOTYL

GARDEN BEAN

L.S.

R

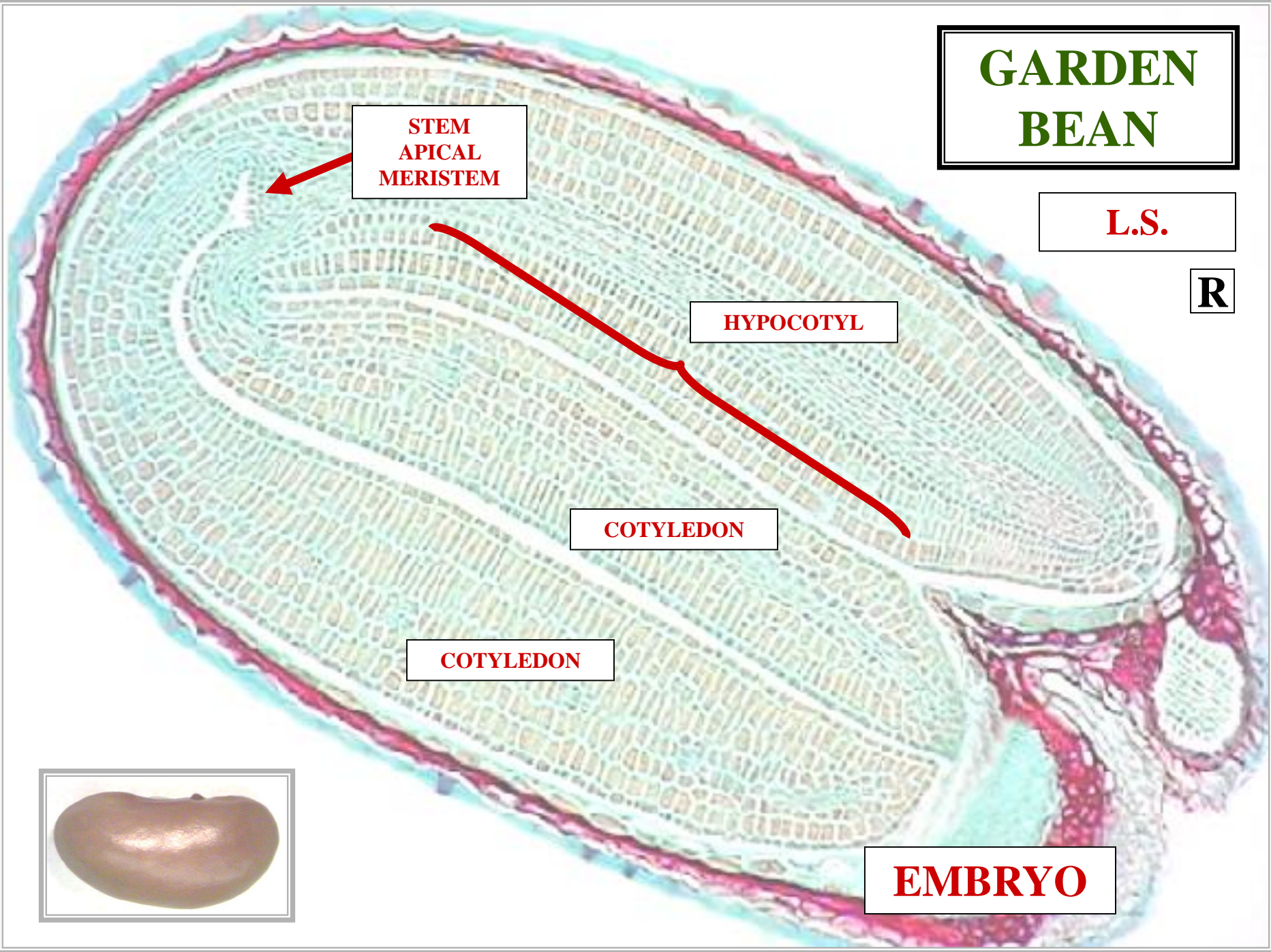
STEM APICAL MERISTEM

HYPOCOTYL

COTYLEDON

COTYLEDON

EMBRYO



RADICLE



R

RADICLE

EMBRYO ROOT

RADICLE

GARDEN BEAN

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R

STEM APICAL MERISTEM

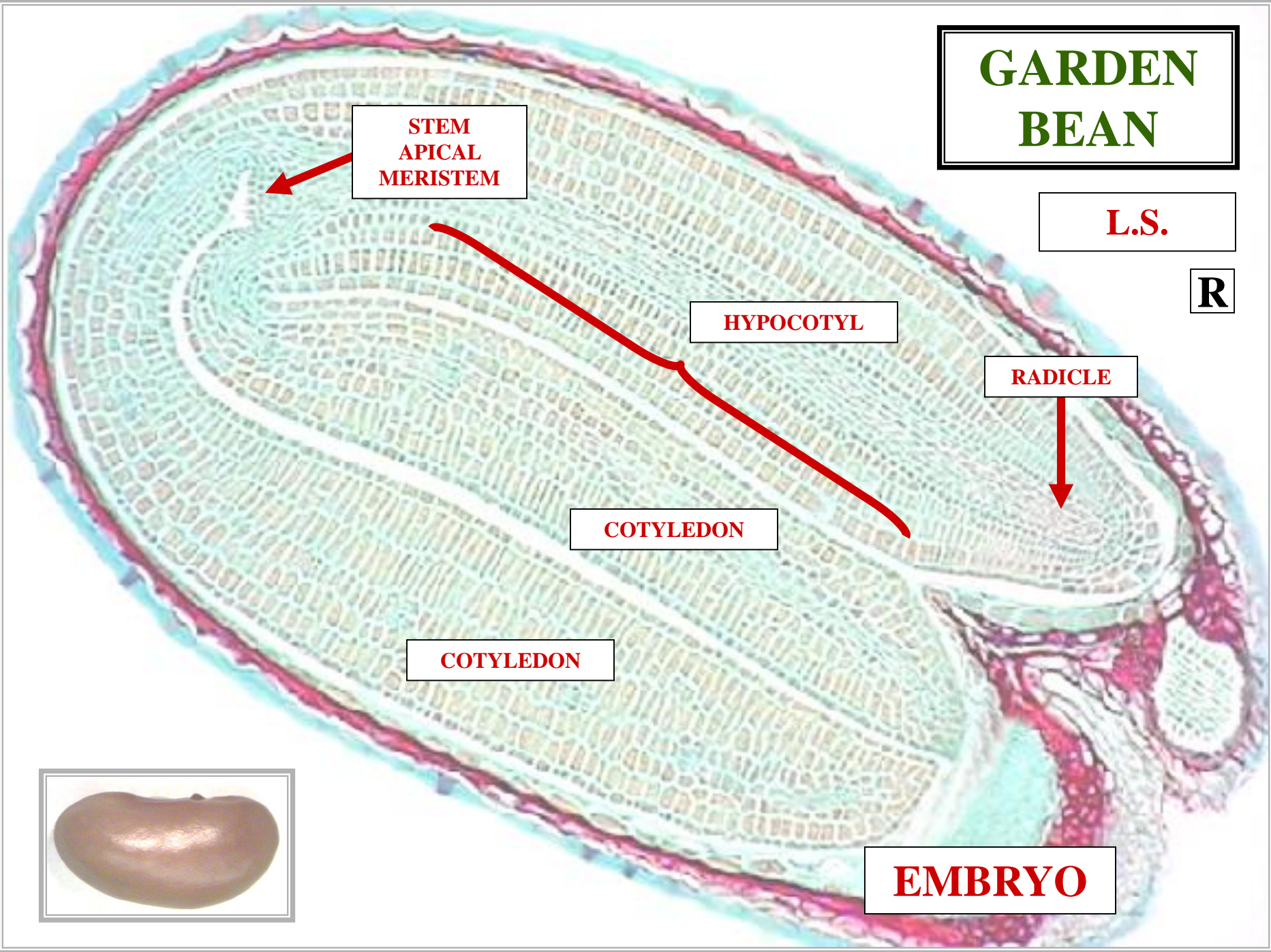
HYPOCOTYL

RADICLE

COTYLEDON

COTYLEDON

EMBRYO



ROOT

APICAL MERISTEM

**ROOT
APICAL MERISTEM**



R

**ROOT
GROWTH REGION**

**ROOT
APICAL MERISTEM**

GARDEN BEAN

L.S.



STEM APICAL MERISTEM

HYPOCOTYL

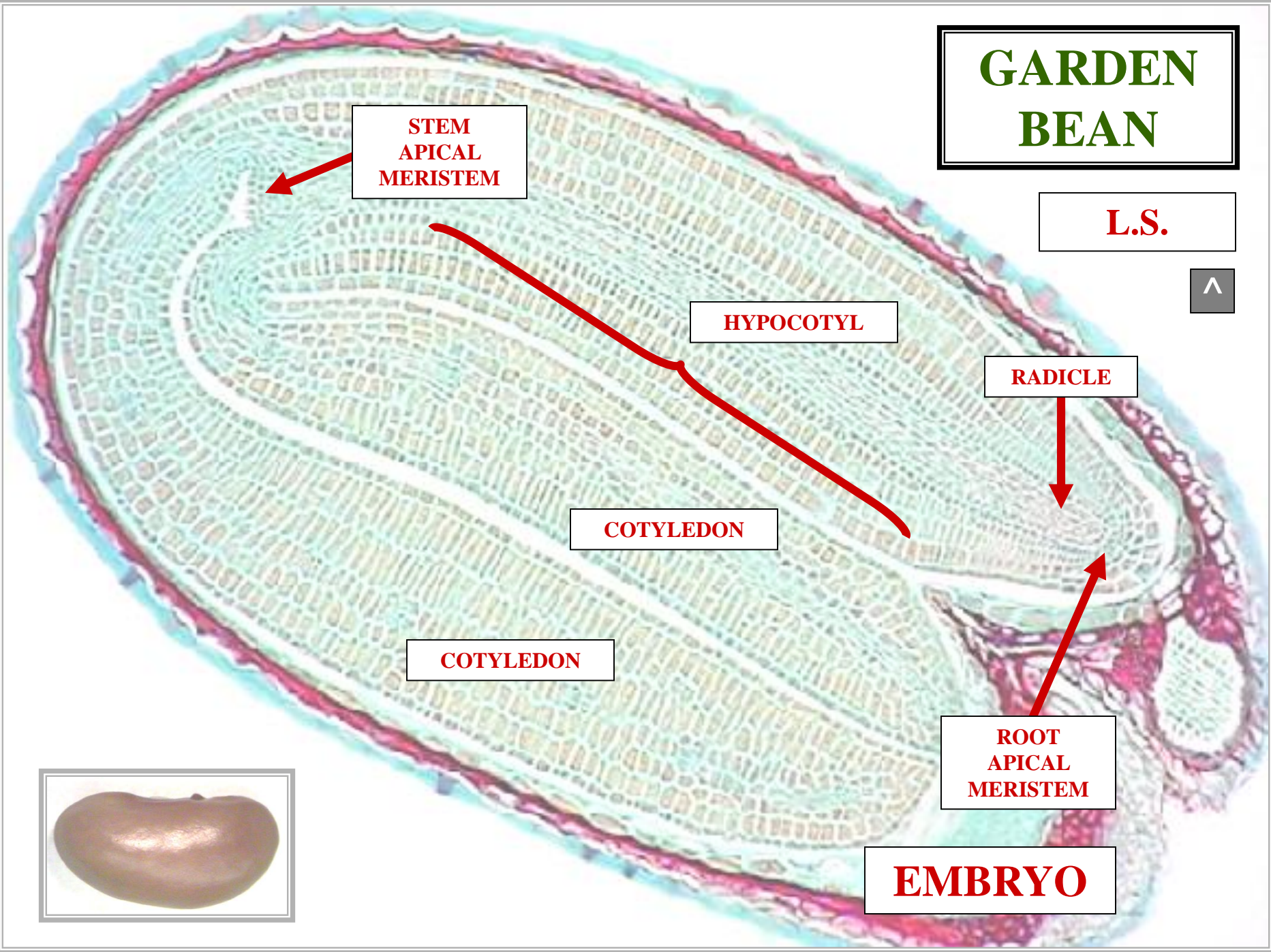
RADICLE

COTYLEDON

COTYLEDON

ROOT APICAL MERISTEM

EMBRYO





MONOCOT EMBRYO



CORN

A longitudinal section of a corn embryo, stained with a purple and blue dye. The embryo is elongated and tapers towards the right. A red bracket highlights the central portion of the embryo. The internal structure shows various tissues, including what appears to be the scutellum and the embryonic axis.

**MATURE
EMBRYO**

P

CORN



L.S.

PERICARP



PERICARP

FRUIT WALL

PERICARP

CORN

PERICARP



EMBRYO

E



L.S.

CORN

PERICARP



ENDOSPERM

EMBRYO

S



L.S.

SCUTELLUM

SCUTELLUM



S

MONOCOT COTYLEDON

ABSORBS ENDOSPERM

SCUTELLUM

CORN

PERICARP



ENDOSPERM

SCUTELLUM

EMBRYO

C



L.S.

