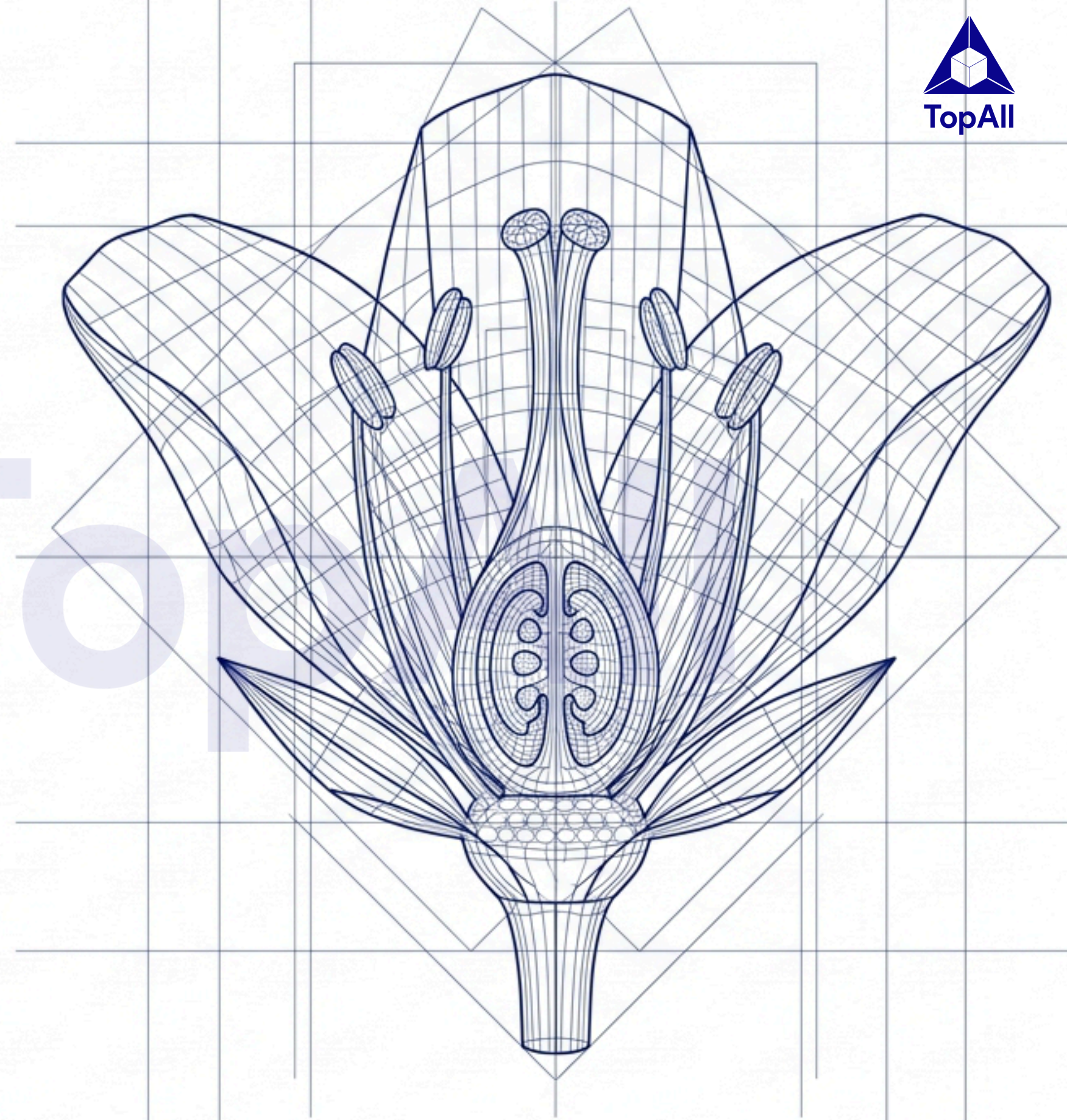


UNIT 02 // SECTION 5.5

The Reproductive Unit of Angiosperms

A Morphological Guide to The Flower



The Flower as a Modified Shoot

Step 1: Meristem Shift

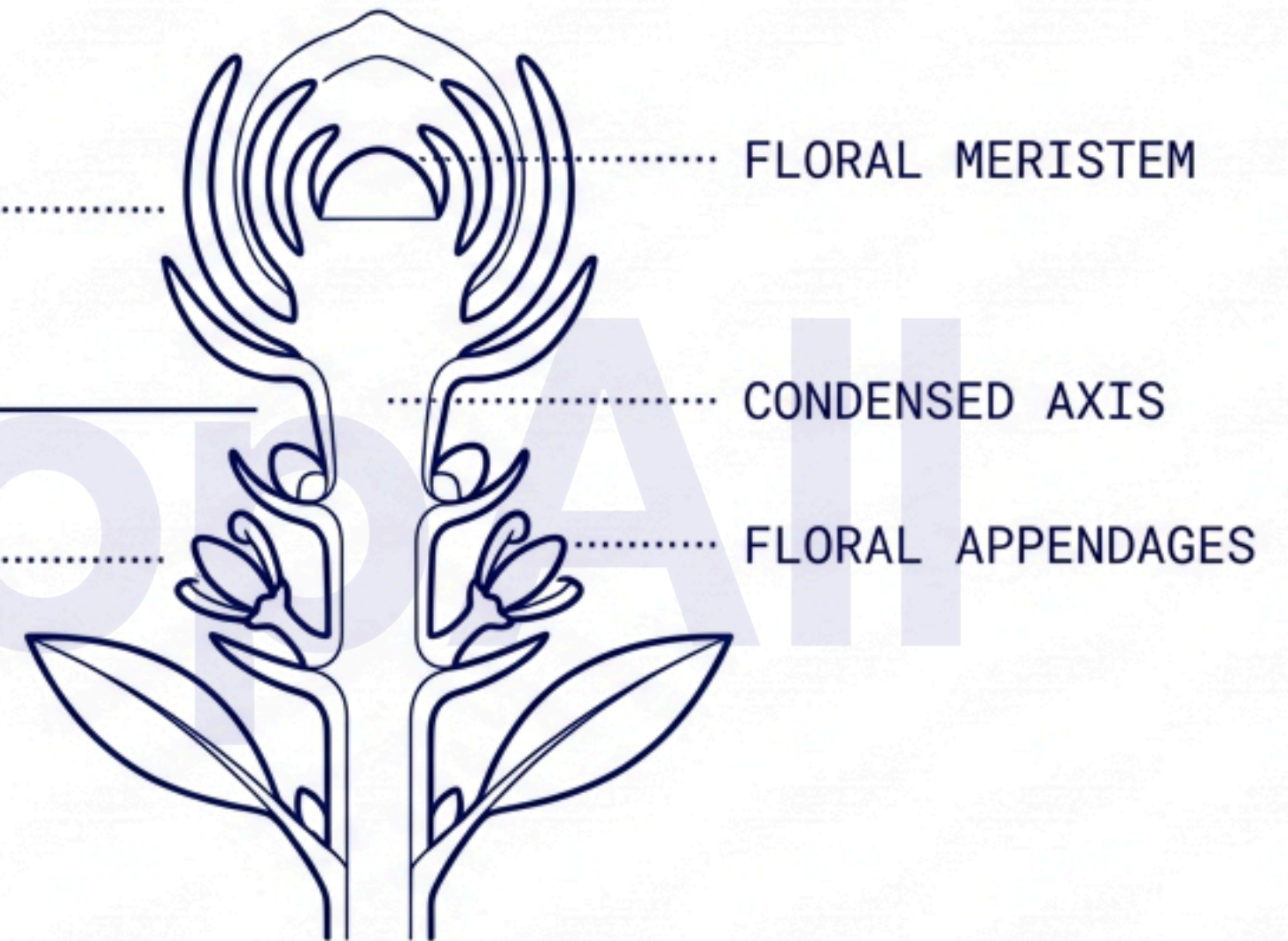
The shoot apical meristem transitions into a floral meristem.

Step 2: Axis Condensation

Internodes cease elongating; the main axis physically condenses.

Step 3: Appendage Generation

The apex produces floral appendages laterally at successive nodes instead of standard leaves.



When a single shoot tip transforms, the resulting flower is always solitary. The arrangement of multiple flowers on an axis is termed the inflorescence.

The Four Floral Whorls

Arranged successively on the swollen end of the pedicel (the thalamus or receptacle).

Accessory

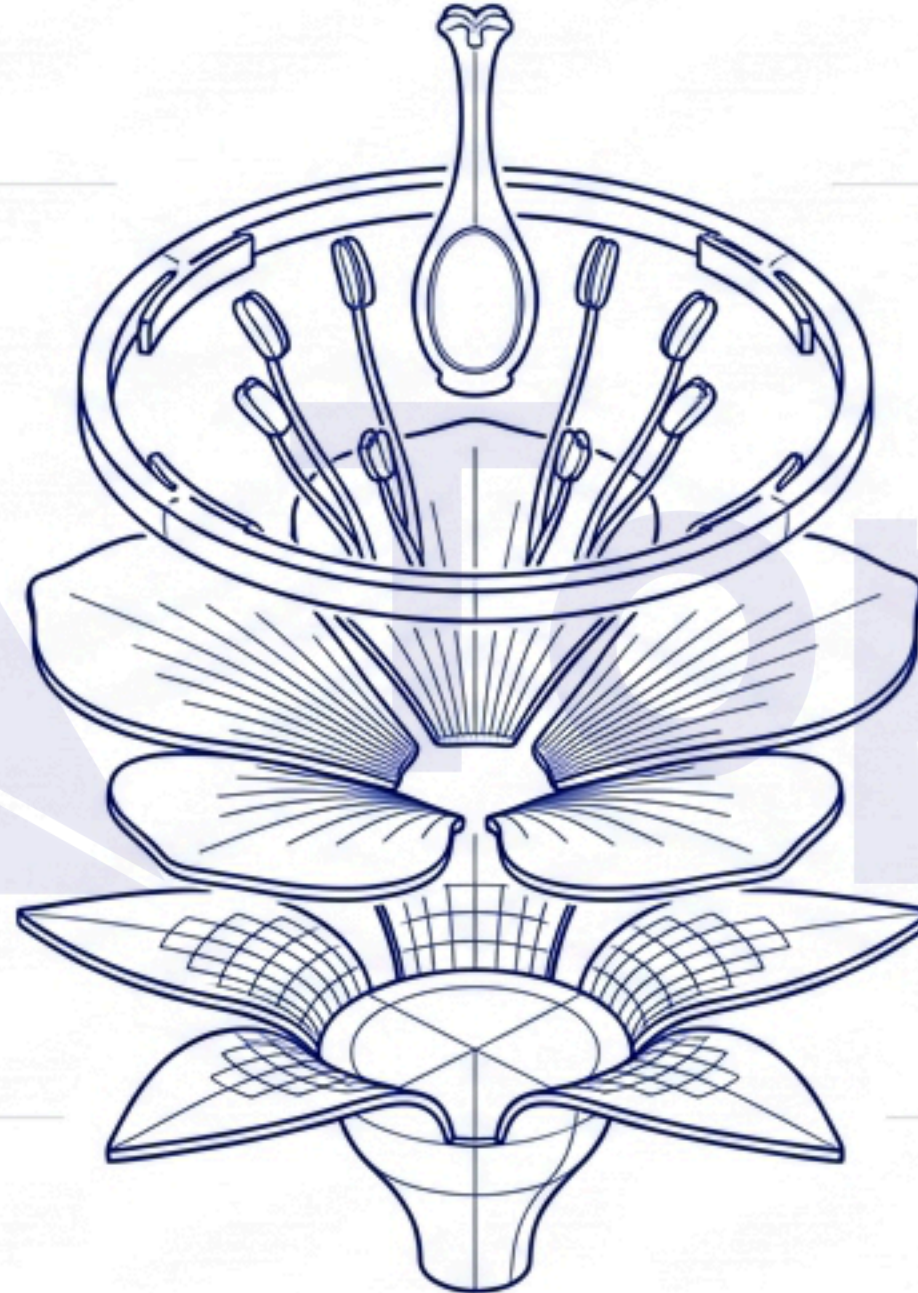
Calyx

The outermost whorl, comprised of protective sepals.

Accessory

Corolla

The secondary whorl, comprised of petals to attract pollinators.



Reproductive

Androecium

Male reproductive organs; comprised of stamens.

Reproductive

Gynoecium

Female reproductive organs; comprised of carpels.

In some flowers like the lily, the calyx and corolla are not distinct and are collectively termed the **perianth**.



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Defining Sexuality & Base Structures

Sexuality



Bisexual

Contains both androecium and gynoecium in a single flower.



Unisexual

Contains either stamens or carpels exclusively.

Sexuality



Bisexual

Contains both androecium and gynoecium in a single flower.



Unisexual

Contains either stamens or carpels exclusively.

Bracts



Bracteate

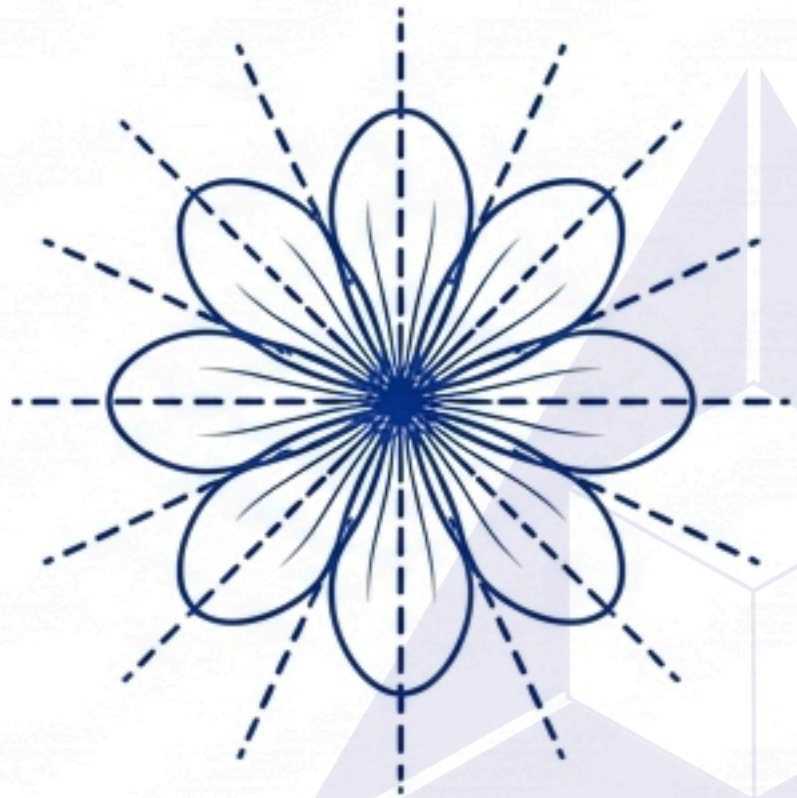
Possesses a reduced leaf (bract) situated at the base of the pedicel.



Ebracteate

Completely devoid of basal bracts.

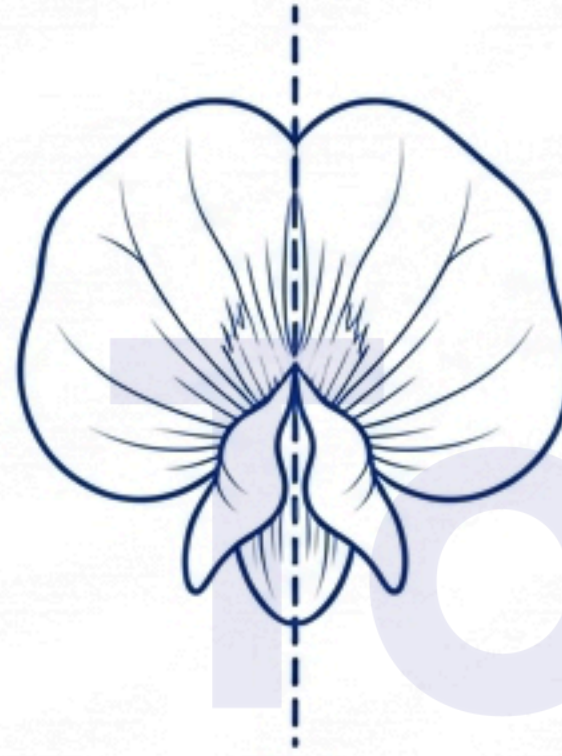
Classification by Floral Symmetry



Actinomorphic (Radial)

Can be divided into two equal radial halves in any radial plane passing through the center.

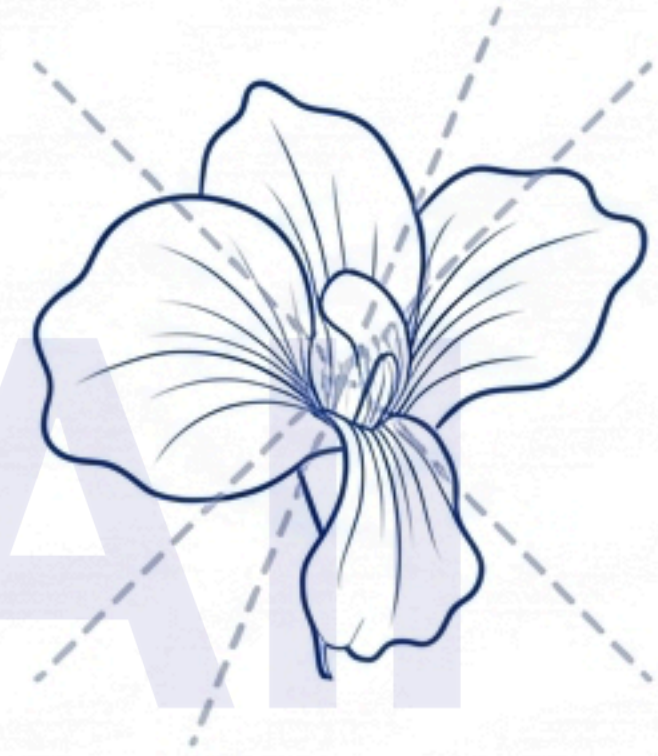
Examples: Mustard, Datura, Chilli



Zygomorphic (Bilateral)

Can be divided into two similar halves in only one particular vertical plane.

Examples: Pea, Gulmohur, Bean, Cassia



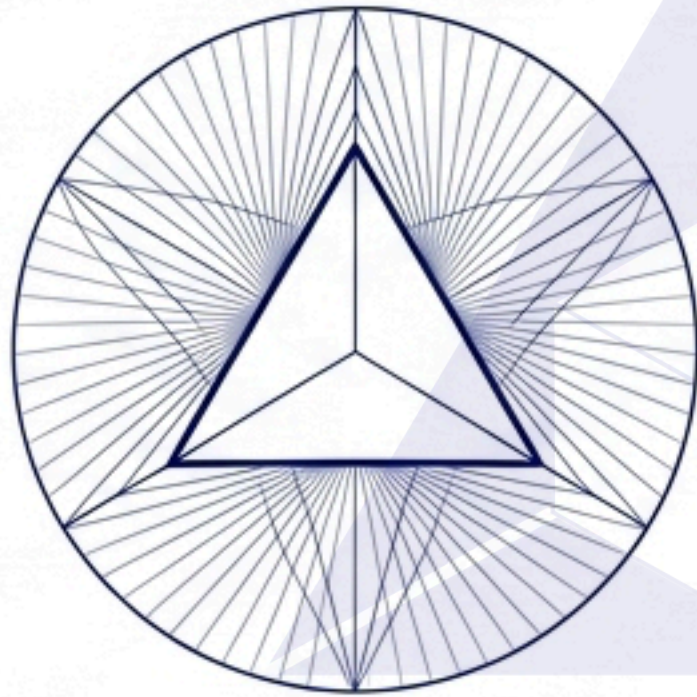
Asymmetric (Irregular)

Cannot be divided into two **similar halves** by any vertical plane passing through the center.

Examples: Canna

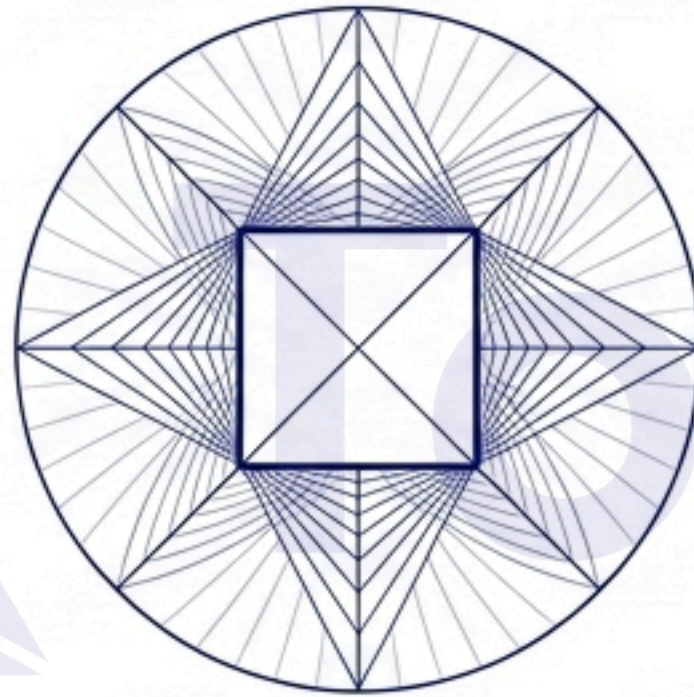
Floral Appendage Multiples

Flowers are additionally categorized by whether their floral appendages (petals, sepals, etc.) occur in specific numeric multiples.



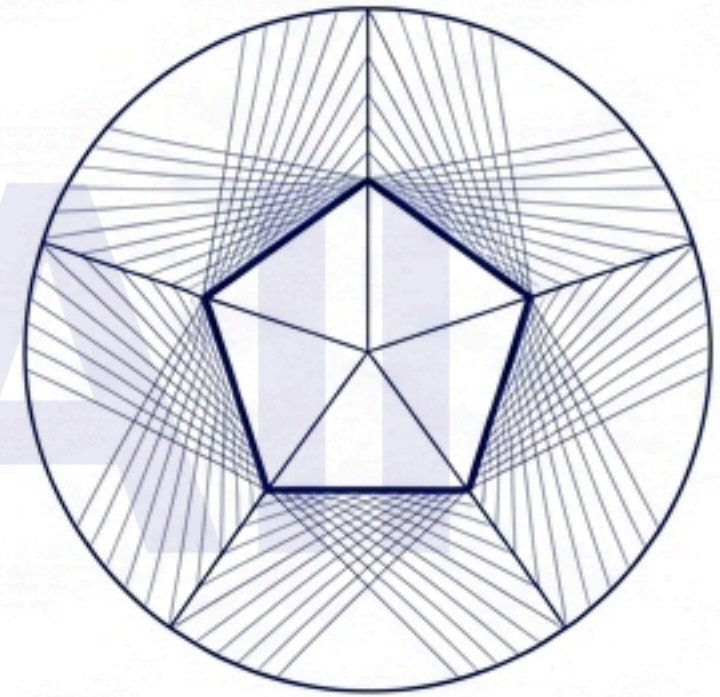
Trimerous

Appendages in multiples of 3.



Tetramerous

Appendages in multiples of 4.

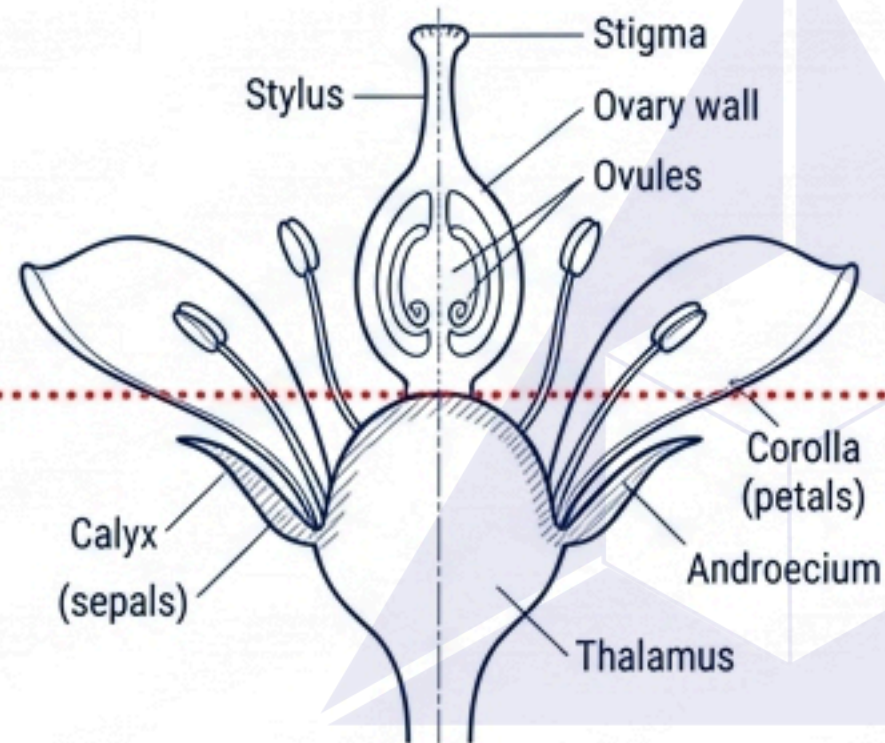


Pentamerous

Appendages in multiples of 5.

Position of Floral Parts on Thalamus

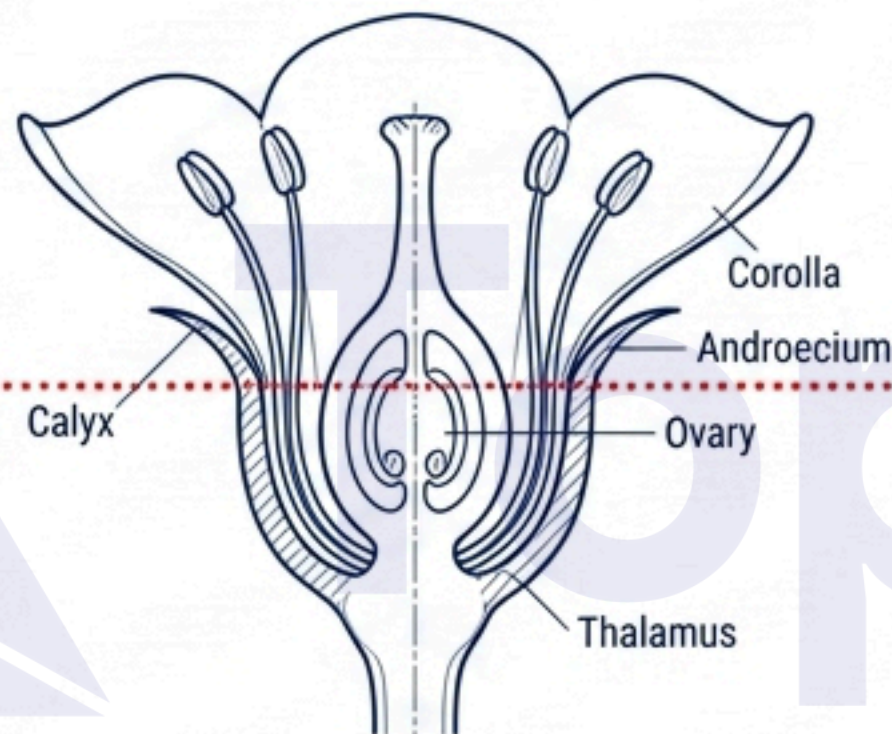
Hypogynous (Superior Ovary)



Structure: Gynoecium occupies the highest position; other parts are situated below it.

Examples: Mustard, China rose, Brinjal.

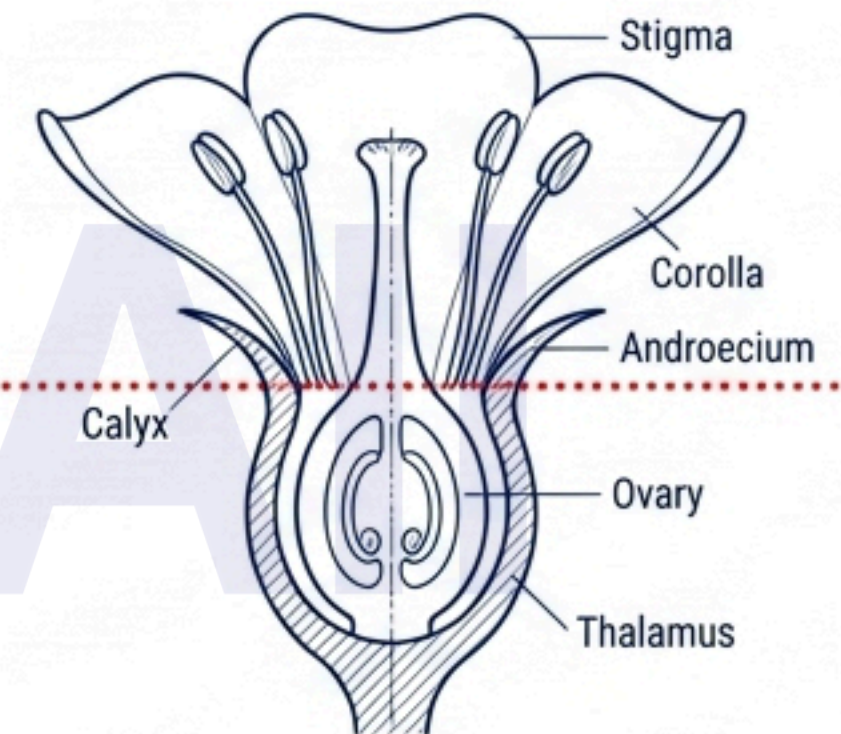
Perigynous (Half-Inferior)



Structure: Gynoecium is centered; other parts are located on the rim of the thalamus at the same level.

Examples: Plum, Rose, Peach.

Epigynous (Inferior Ovary)

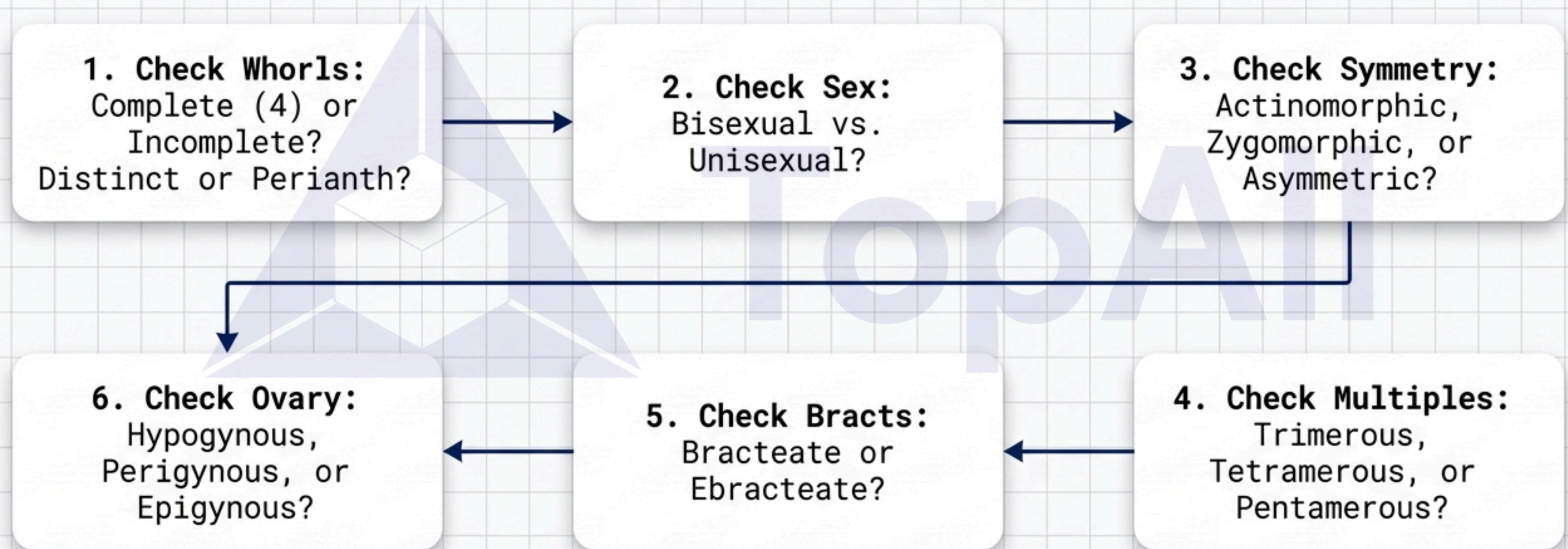


Structure: Thalamus margin grows upward, fully enclosing and fusing with the ovary; other parts arise above it.

Examples: Guava, Cucumber, Sunflower ray florets.

The Botanical Diagnostic Checklist

Assess the following dimensions to generate a complete semi-technical floral description:



This systematic sequence forms the foundational logic for writing standard botanical formulas and accurate field identifications.



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