

Family	Description	Sample
Apiaceae (Umbrelliferae) * K ₅ C ₅ A ₅ G _(/2) p 237 (271)	Usually bisexual herbs with hollow stems and compound leaves; Inflorescences are composed of numerous small flowers arranged in a more or umbrella-shaped umbel. Each umbel is usually compound (primary - commonly with bracts - and secondary umbel). Sepals (calyx): 5 Petals (corolla): 5 Stamens : 5 Ovary : 2-celled inferior	<i>Chaerophyllum hirsutum</i> <i>Anthriscus sylvestris</i>
Asteraceae (Compositae) Disk-florets: * K _∞ C ₍₅₎ A ₅ G _(/2) Ray-florets: * K _∞ C ₍₅₎ A ₍₅₎ G _(/2) p. 428 (417)	Inflorescences uniformly clustered together to form a flower-like head (capitulum) surrounded by calyx-like bracts. The tiny flowers (florets) are arranged on the apex of the stem (receptacle) which may be conical, flat, or concave w/ or w/o scales subtending each floret. Florets are usually bisexual. Stamens : 5, fused at their base to the corolla Anthers : 5, forming a fused tube round the style Ovary : 1-seeded, inferior with two stylets Disk-florets - type A: Corolla is bell-shaped with 5 short teeth Ray-florets - type B: Corolla is strap-shaped with a long narrow limb	<i>Chrysanthemum leucanthemum</i> <i>Hieracium lachenalii</i> <i>Leucanthemum vulgare</i> <i>Centaurea jacea</i> <i>Hieracium sylvaticus</i> <i>Crepis bienis</i>
Boraginaceae (Borage Family) * K ₅ [C ₍₅₎ A ₅] G _(/2) p. 372 (330)	Annual or herbaceous flowers, usually with stiff bristly hairs (sometimes hairless) with alternate entire leaves. Flowers often borne on the upper side of dichotomous, outward-coiled branches, and opening progressively from the base of each branch. Calyx : 5-lobed, tubular Corolla : 5-lobed, bell- or funnel-shaped (w/ or w/o scales in throat) Stamens : 5, attached to the corolla Ovary : 2 or 4-celled with one style Fruit : usually 4 one-seeded nutlets	<i>Symphytum tuberosum</i> <i>Pulmonaria officinalis</i>
Brassicaceae (Cruciferaeae) * K ₄ C ₄ A ₂₊₄ G _(/1) p. 268 (117)	Herbaceous annual plants with alternate leaves (usually w/ stipules). Flowers usually small, numerous, in branched clusters; Floral structure distinctive throughout family. Sepals (calyx): 4 Petals (corolla): 4, usually spreading in a cross (w/ a narrow stalk) Stamens : 6 Ovary : 2 fused carpels with one style (stigma rounded or bilobed) Fruit : either 3x as long as wide or less than 3x as long	<i>Capsella bursa-pastoris</i> <i>Cardamine trifolia</i> <i>Dentaria enneaphyllos</i>
Campanulaceae (Bellflower Family) * K ₍₅₎ C ₍₅₎ A ₅ G _(/3-5) p. 423 (410)	Usually herbaceous plants with a milky juice; leaves simple alternate. Flowers often showy, regular. Calyx : 5-lobed (fused to the ovary at the base) Corolla : 5-lobed (long), usually bell-shaped (shorter than the tube) Stamen : 5 Ovary : two- to ten-celled with 3-5 stigmas Fruit : capsule or fleshy	<i>Phyteuma spicatum</i> <i>Phyteuma orbiculare</i> <i>Campanula patula</i>
Caryophyllaceae (Pink Family) * K ₍₅₎ C ₄₋₅ A ₅₊₅ G _(/2-5) p. 318 (77)	Herbaceous annuals and perennials, with pairs of opposite or rarely alternate or whorled leaves which are narrow, undivided, and often fused together at their base. Flowers usually in dichotomously branching clusters, rarely solitary. Sepals (calyx): 4-5, free or fused into a tube Petals (corolla): 4-5, often deeply lobed Stamen : 8-10 Ovary : one-celled, superior, styles free or fused, w/ 2-5 stigmas Fruit : capsule or fleshy	<i>Lychnis floss-cuculi</i> <i>Silene dioica</i>

Family	Description	Sample
Dispiaceae (Scabious Family) ↓ $K_{(x)} C_{(4-5)} A_4 G_{(2)}$ p. 366 (407)	Usually herbaceous plants with opposite or whorled leaves. Flowers small, clustered in a head or capitulum, which is surrounded at the base by calyx-like bracts forming an involucre. Flowers usually somewhat irregular, surrounded at the base by an epicalyx (involucel). Calyx: small, cup-shaped or deeply cut into segments (teeth or hairs) Corolla: 4-5 fused into a tube and 2-lipped Stamens: usually 4, rarely 2, never fused Ovary: inferior Fruit: 1-seeded, enclosed in the involucel and crowned by the calyx	<i>Scabiosa lucida</i> <i>Scabiosa columbaria</i> <i>Knautia dipsacifolia</i>
Euphorbiaceae (Spurge Family) * $P_5 A_{1-∞} G_{2-3/}$ p. 257 (222)	Usually herbs, rarely shrubs. Leaves alternate, and usually with stipules. Flowers one-sexed, regular; Perianth: 5, green and inconspicuous or absent Stamens: 1 or many Ovary: 3-celled, superior Fruit: usually a capsule	<i>Euphorbia verrucosa</i> <i>Euphorbia brittingeri</i>
Fabaceae (Pea-Family) ↓ $K_{(5)} C_5 A_{(9+1)} G_{1/}$ p. 204 (175)	Trees, shrubs, or herbaceous plants usually w/ compound leaves and often w/ tendrils; stipules present. Sepals (calyx): 5 radially symmetrical Petals (corolla): 5 symmetrical in one plane only (butterfly-like: standard (upper), wings (lateral), keel (lower)) Stamens: usually 10 (9+1) radially symmetrical, fused to form a tube Ovary: 1 carpel only Fruit: Dry carpel or legume, splitting longitudinally into 2 valves.	<i>Vicia sepium</i> <i>Medicago lupulina</i> <i>Trifolium pratense</i> <i>Lotus corniculatus</i>
Fumariaceae (Fumitory) ↓ $K_{(2)} C_4 A_6 G_{1/}$ p. 168 (116)	Herbaceous plants w/ milky or watery sap. Leaves simple or compound; stipules absent. Flowers irregular, 2-lipped and clustered. Sepals (calyx): usually 2 Petals (corolla): 4 (upper hooded, lower keeled, lateral narrow) Stamen: usually numerous Ovary: superior of 1 to many carpels Fruit: 1-seeded nuttlet	<i>Corydalis cava</i>
Lamiaceae (Mint-Family) ↓ $K_{(5)} [C_{(5)} A_{2+2}] G_{(1)}$ p. 406 (344)	Distinctive family, often aromatic and glandular, usually herbaceous plants or small shrubs w/ quadrangular stems and simple opposite paired leaves, which are arranged successively at right angles to each other. Flowers usually clustered together to form a spike-like inflorescence and mostly symmetrical in one plane only. Calyx: 5-lobed, tubular and often 2-lobed Corolla: 5-lobed, tubular, usually strongly 2-lipped Stamens: 4, rarely 2, attached to the corolla tube Ovary: Fruit: 4 one-seeded nutlets	<i>Ajuga reptans</i> <i>Lamium maculatum</i> <i>Glechoma hederacea</i> <i>Prunella vulgaris</i> <i>Lamiastrum galeobdolon</i>
Orchidaceae * $P_{3+3} [A_1 G_{(3)}]$ p. 493 (571)	Herbaceous terrestrial perennials; often w/ tuberous roots; leaves usually spirally arranged or in 2 rows, often w/ a sheathing base, sometimes spotted (in saprophytic species leaves are reduced to scales and are not green). Flowers usually in a spike-like cluster and each flower is subtended by a leafy or scaly bract. Floral structure unique and highly specialized for pollination, symmetrical in one plane only. Perianth: two whorls of 3-segments (outer whorl colored); inner whorl consists of 2 petal-like segments (lip-like = labellum, 3-lobed) Stamens: 1-2 fused to the stigma (form column), bearing the pollinia Ovary: inferior, usually one-celled, often twisted. Fruit: Capsule opening by 3 or 6 longitudinal slits, very numerous	<i>Dactylorhiza maculata</i>

Family	Description	Sample
Polygalaceae (Milkworth Family) ↓ K ₅ C ₃ A ₍₈₎ G ₂ / p. 235 (230)	Herbs or less commonly shrubs, usually w/ alternate simple leaves and w/o stipules. Flowers bisexual, symmetrical in one plane only. Sepals (calyx): 5 overlapping, the 2 inner often brightly colored (large) Petals (corolla): 3-5 Stamens : 8 usually fused into a tube, itself fused to the petals Ovary : superior, with 2 one-seeded cells.	<i>Polygala vulgaris</i>
Polygonaceae (Dock Family) * P ₃₊₃ A ₆₋₉ / G ₂₋₄ / p. 344 (61)	Usually herbs w/ alternate simple leaves and w/ membranous sheath encircling the nodes of the stem in place of stipules. Flowers bisexual. Perianth : 3-6 segments often enlarging and becoming membranous Stamens : usually 6-9 Ovary : superior, one-seeded w/ 2-4 styles Fruit : nuts, flattened and winged or three-angled	<i>Rumex acetosa</i> <i>Polygonum bistorta</i> <i>Phagopyrum sp.</i> (Buchweizen)
Primulaceae (Primrose Family) * K ₅ [C ₍₅₎ A ₅] G ₁ / p. 313 (300)	Usually herbaceous plants w/ simple whorled leaves in a basal rosette. Flowers radially symmetrical, solitary or in umbels. Sepals (calyx): 5 Petals (corolla): 5, bell- or funnel-shaped w/ spreading lobes Stamens : 5 attached to the corolla tube Ovary : one-celled, superior, many seeded w/ 1 stigma Fruit : capsule	<i>Primula elatior</i>
Ranunculaceae (Buttercup Family) */↓ K ₃ C ₆₋₁₀ A _∞ G _∞ / or */↓ P ₅ A _∞ G _∞ / p. 151 (95)	Herbaceous plants w/ dissected, alternate leaves, and conspicuous flowers (<i>Clematis sp.</i> is woody and opposite leaves) Flowers bisexual Perianth (calyx ad corolla): often of 3 sets of organs may be green (sepal-like) or colored (petal-like) w/ funnel- or petal-like nectaries. Stamen : numerous Ovary : many seeded-carpels some species poisonous to man and live-stock.	<i>Caltha palustris</i> <i>Anemone nemorosa</i> <i>Ranunculus ficaria</i> <i>Hepatica nobilis</i> <i>Anemone ranunculoides</i>
Rosaceae (Rose Family) * K ₅ C ₅ A _{∞ v.5} G _{1-∞} -/ p. 186 (157)	Trees, shrubs or herbaceous plants w/ alternate, simple or compound leaves, usually w/ stipules. Flowers radially symmetrical. Sepals (calyx): 5; epicalyx sometimes present! Petals (corolla): 5 Stamen : usually numerous Ovary : cup-shaped, thus half-inferior / inferior; carpels 1 to many ∞ Fruit : great variety; carpels either one-seeded (dry or fleshy) or many (dry or fleshy), either free, fused or fused w/ receptacle.	<i>Geum rivale</i> <i>Prunus padus</i> <i>Malus sylvestris</i> <i>Pyrus comunis</i>
Scrophulariaceae (Figwort Family) ↓ K ₄₋₅ [C ₍₅₎ A ₍₂₋₅₎] G ₍₁₋₂₎ p. 380 (374)	Usually herbaceous plants, sometimes partially parasitic on herbaceous plants; leaves usually entire or toothed. Flowers largely symmetrical in plane only. Calyx : 4 to 5 lobed Corolla : 4-5 lobed, fused at the base, from ± regular lobed to 2-lipped Stamen : 2, 4, or 5 attached to the corolla Ovary : two-celled, superior, w/ style simple or 2-lobed Fruit : capsule, rarely a berry	<i>Linearia cymbalaria</i> <i>Rhinantus minor</i>

Monocots

Liliaceae (Lily Family) * P ₃₊₃ A ₃₊₃ G _(3/) p. 482 (486)	Usually herbaceous plants, often with underground bulbs, corms, or rhizomes; leaves entire, alternate or inwhorls, often all basal. Flowers regular, w/ parts usually in three. Perianth: usually of two petal-like whorls of 3 Stamens: 6 Ovary: 1 or 3 styles, superior (three fused carpels w/ many ovules) Fruit: capsule or berry	<i>Alium ursinum</i> <i>Paris quadrifolia</i> <i>Polygonatum multiflorum</i> <i>Colchicium autumnale</i> ☞
grasses - all MONOCOT: <ul style="list-style-type: none"> • secondary homorhizic • vegetative reproduction via runners • embryo placed in Endosperm 		
Juncaceae (Rush Family) * P ₃₊₃ A ₃₊₃ G _(3/) p. 505 (516)	Often tufted herbaceous plants w/ narrow, rounded, channelled, or flattened grass-like leaves which sheath the stem at the base. Flowers inconspicuous, greenish, or brownish, often many and massed into dense heads or branched clsters. Perianth: 6 similar scale-like segments Stamen: 6 Ovary: one- or three-celled w/ 1 style (s/t absent) & feathery 3 stigmas Fruit: capsule, encircles by the persisting perianth	<i>Juncus inflexus</i>
Cyperaceae (Sedge Family) * K _x C _(x) A ₂₋₃ G _{1/} p. 511 (559)	Usually herbaceous perennials, often w/ rhizomes. Leaves linear, long-sheathing at the base, sometimes reduced to sheaths only. Flowers bisexual or one-sexed, each subtended by a scaly bract or glume, and clustered into spiklets. Spiklets either solitary or grouped into spike-like inflorescence, often subtended by bracts. Perianth: often absent or reduced to bristle-like hair or scales Stamen: 3, rarely 2 Ovary: 1 ovule w/ 2 to 3 feathery stigmas Fruit: more or less globular, 3-sided or biconvex, not splitting	<i>Carex hirta</i> <i>Carex flava</i> <i>Carex leporina</i>
Poaceae = Gramineae (Grass Family) * K _x C _(x) A ₃ G _(2/) p. 536 (522)	Herbaceous annuals or perennials; rarely woody, usually w/ hollow stem and solid nodes. Leaves alternate w/ a sheathing base and narrow spreading blade. Ligule (flap of tissue) present at the junction of sheath and blade, less common two auricles (thickened projections) on each side of the junction. Inflorescence simple or spike-like, often further branched to a cluster (panicle). Florets tiny, usually bisexual and often densely clustered, forming a one to many flowered spiklet (usually stalked) encircled by sterile scale-like bracts or glumes. Florets consist of outer bract (lemma) and inner thinner bract (palea). Stamen: 3, rarely 1 or 2 Ovary: one-celled superior w/ 2 feathery styles Fruit: one-seeded, invested & fused w/ the ovary wall (caryopsis) ----- Barley (<i>Hordeum</i>) upper stem not hairy; long-awned inflorescence Wheat (<i>Triticum</i>) / Rye (<i>Secale</i>): upper stem hairy Wheat (<i>Triticum</i>): lathy auricles	<i>Lolium perenne</i> <i>Briza media</i> <i>Arrhenatherum elatius</i> <i>Anthoxanthum odoratum</i> <i>Cynosyris christatus</i> <i>Dactylis glomerata</i> <i>Holcus lanatus</i>

Legend:

↓.....symmetrical in one plane only

*.....radially symmetrical

K....calyx

C....corolla

P....perianth

p. xxx Schmeil & Fitsch

(x)..fused

[x]..fused

∞....many, numerous

p. (xxx) Polunin