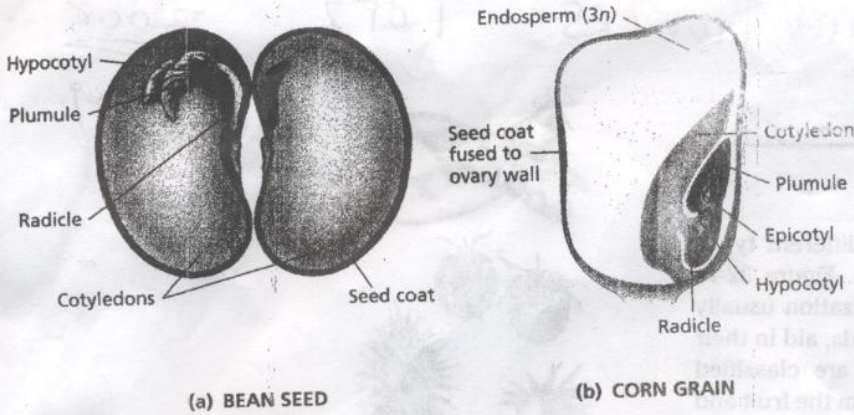
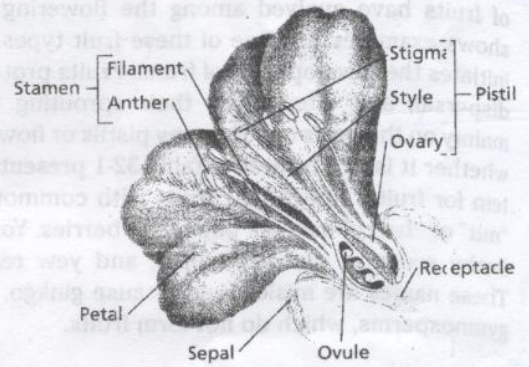


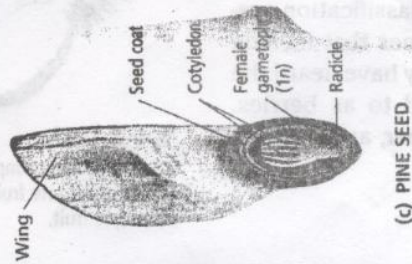
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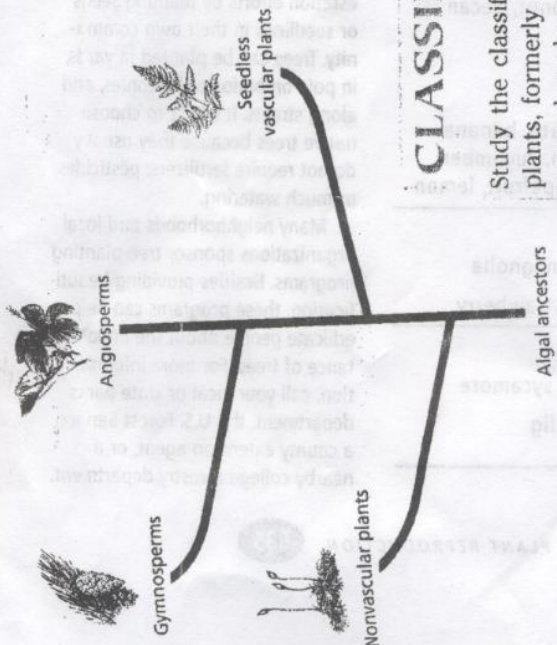
**FIGURE 32-5**  
 This diagram shows a flower with all four whorls of flower parts—sepals, petals, stamens, and carpels. Many flowers lack one or more of these whorls.



**FIGURE 32-12**  
 (a) A bean seed has two cotyledons and no endosperm. (b) A corn grain contains a single seed, which has one cotyledon and endosperm. (c) A pine seed has eight cotyledons and tissue from the female gametophyte.



**FIGURE 30-2**  
 This phylogenetic tree shows how plants evolved from green algae. The earliest plants were nonvascular and radiated into more-complex forms of vascular plants.



## CLASSIFYING PLANTS

Study the classification of plants in Table 30-1. The 12 phyla of plants, formerly referred to as *divisions*, can be divided into two groups based on the presence of vascular tissue. The three phyla of

**TABLE 30-1 The 12 Phyla of the Plant Kingdom**

Type of plant	Phylum	Common name	Approximate number of species	
Nonvascular	Bryophyta	mosses	10,000	
	Hepatophyta	liverworts	6,500	
	Anthocerotophyta	hornworts	100	
Vascular, seedless	Psilotophyta	whisk ferns	10–13	
	Lycophyta	club mosses	1,000	
	Sphenophyta	horsetails	15	
	Pterophyta	ferns	12,000	
Vascular, seed	Gymnosperms	Cycadophyta	cycads	100
		Ginkgophyta	ginkgoes	1
Angiosperms	class Monocotyledones	Coniferophyta	conifers	550
		Gnetophyta	gnetophytes	70
		Anthophyta	flowering plants	240,000
		class Dicotyledones	dicots	170,000