

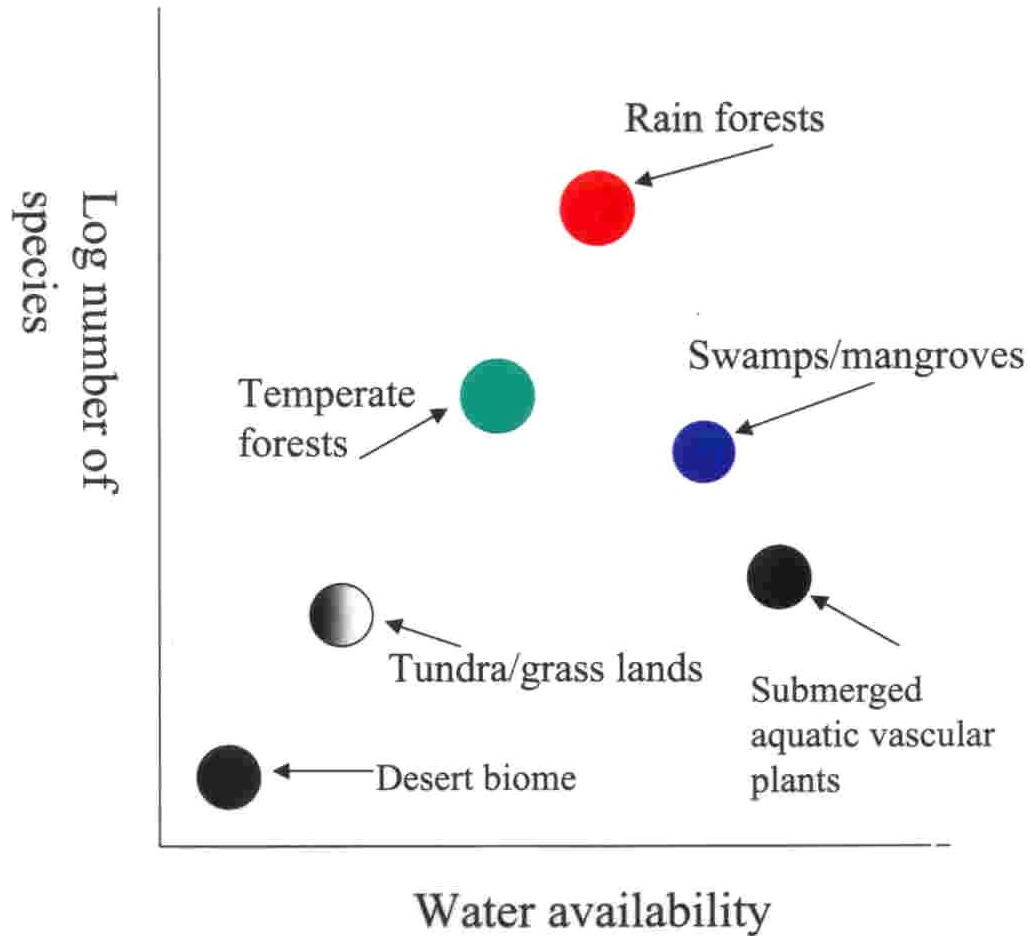
Carbon Pools in the Major Reservoirs on Earth

Table 5.1 Carbon pools in the major reservoirs on Earth

Pools	Quantity ($\times 10^{15}$ g)
Atmosphere	720
Oceans	38,400
Total inorganic	37,400
Surface layer	670
Deep layer	36,730
Total organic	1,000
Lithosphere	
Sedimentary carbonates	>60,000,000
Kerogens	15,000,000
Terrestrial biosphere (total)	2,000
Living biomass	600–1,000
Dead biomass	1,200
Aquatic biosphere	1–2
Fossil fuels	4,130
Coal	3,510
Oil	230
Gas	140
Other (peat)	250

From: Falkowski & Raven. Aquatic Photosynthesis. p. 130 (1997)

Environmental Stress is a Selection Mechanism



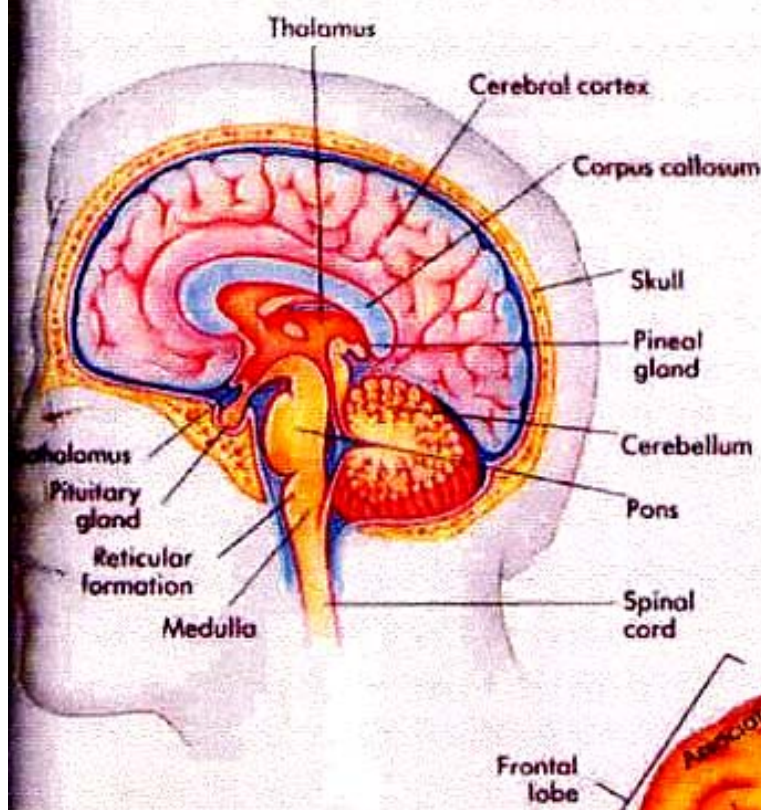


FIGURE 45-8
 A section through the human brain. The cerebrum envelops the rest of the brain. Only the cerebral cortex, part of the cerebrum, is visible in surface view.

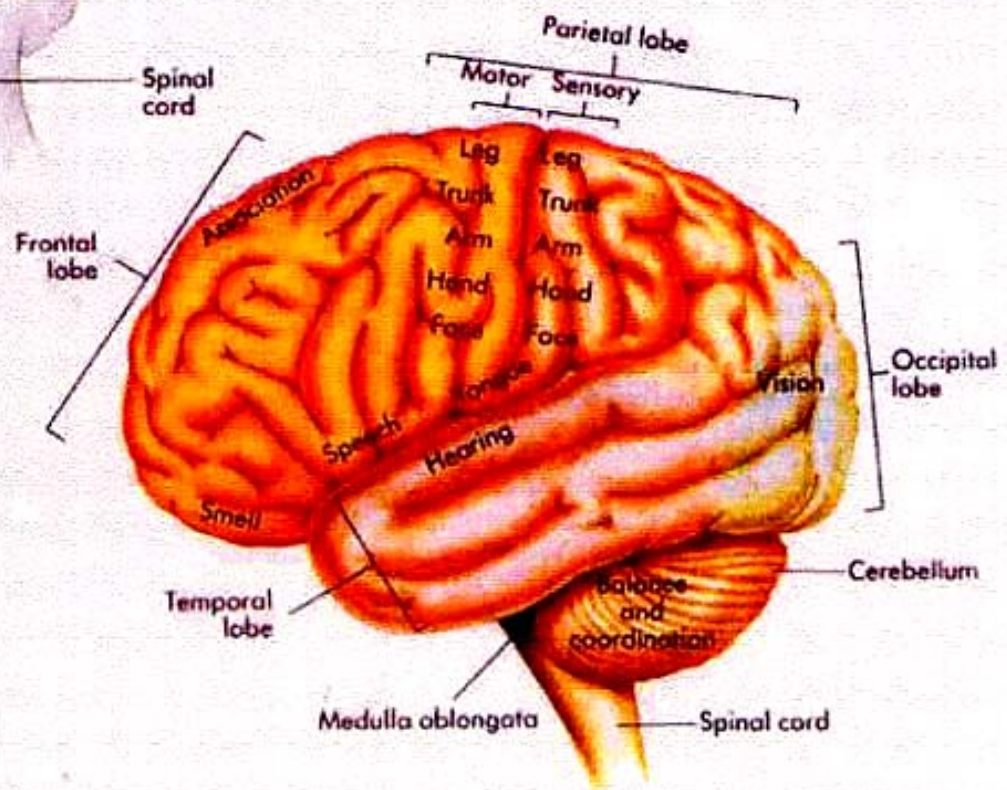


FIGURE 45-9
 The major functional regions of the human brain.

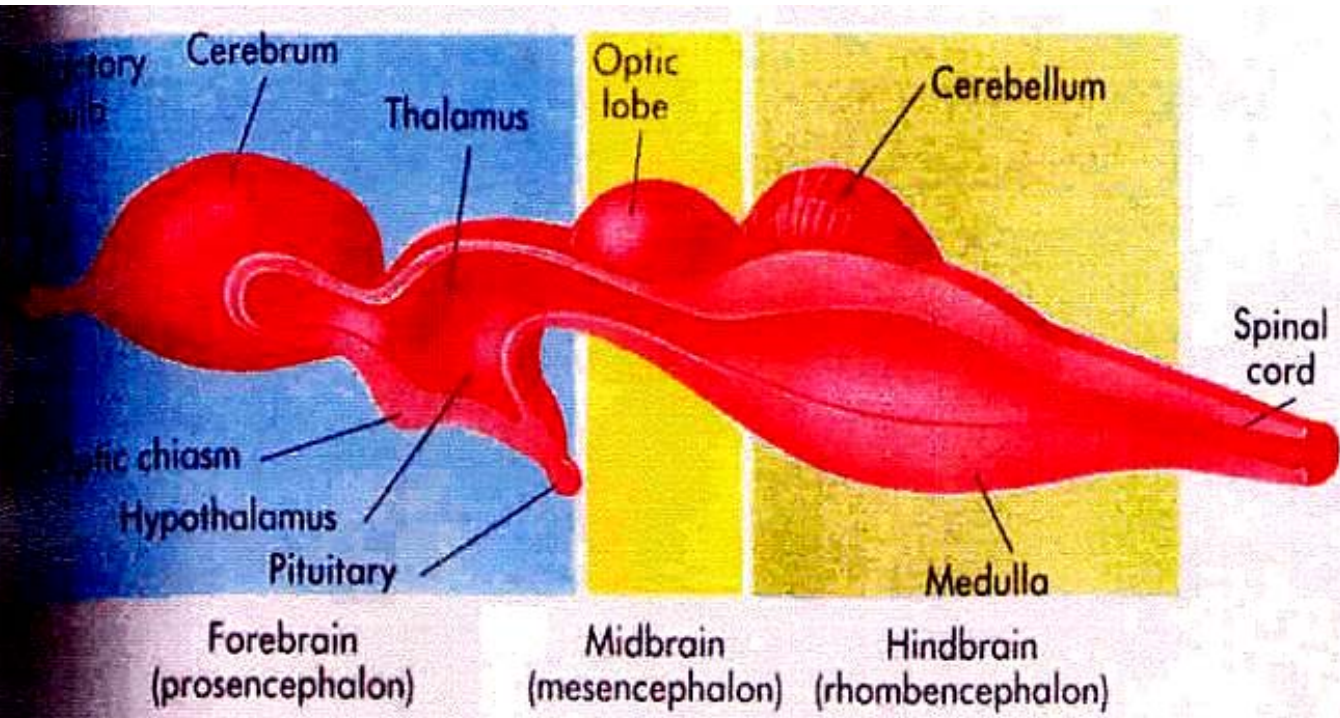


FIGURE 45-5

The basic organization of the vertebrate brain can be seen in the brains of primitive fishes. These brains are divided into the same regions that can be seen in differing proportions in all vertebrate brains: the hindbrain, which is the largest portion of the brain in fishes; the midbrain, which in fishes is a small zone devoted to processing visual information; and the forebrain, which in fishes is devoted primarily to processing olfactory (smell) information. In the brains of terrestrial vertebrates, the forebrain plays a far more dominant role than it does in fishes.

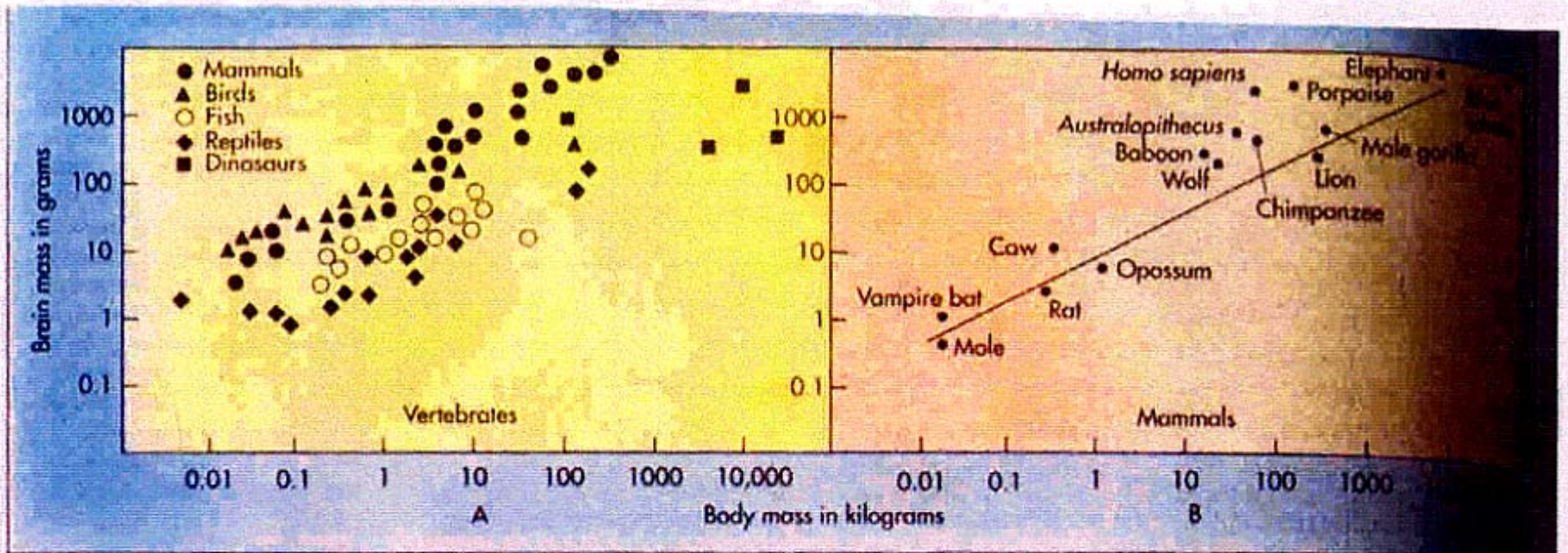


FIGURE 45-7

Brain mass versus body mass.

Among most vertebrates, brain weight is a relatively constant proportion of body weight, so that a plot of brain mass versus body mass gives a straight line.

A However, the proportion of brain mass to body mass is much greater in birds than in reptiles, and even greater in mammals.

B Among mammals, humans have the greatest brain mass per unit of body mass (that is, the farthest perpendicular distance from the plotted line). In second place are the porpoises.

Total Dissolved Inorganic Carbon ($\mu\text{mol} / \text{kg}$)

