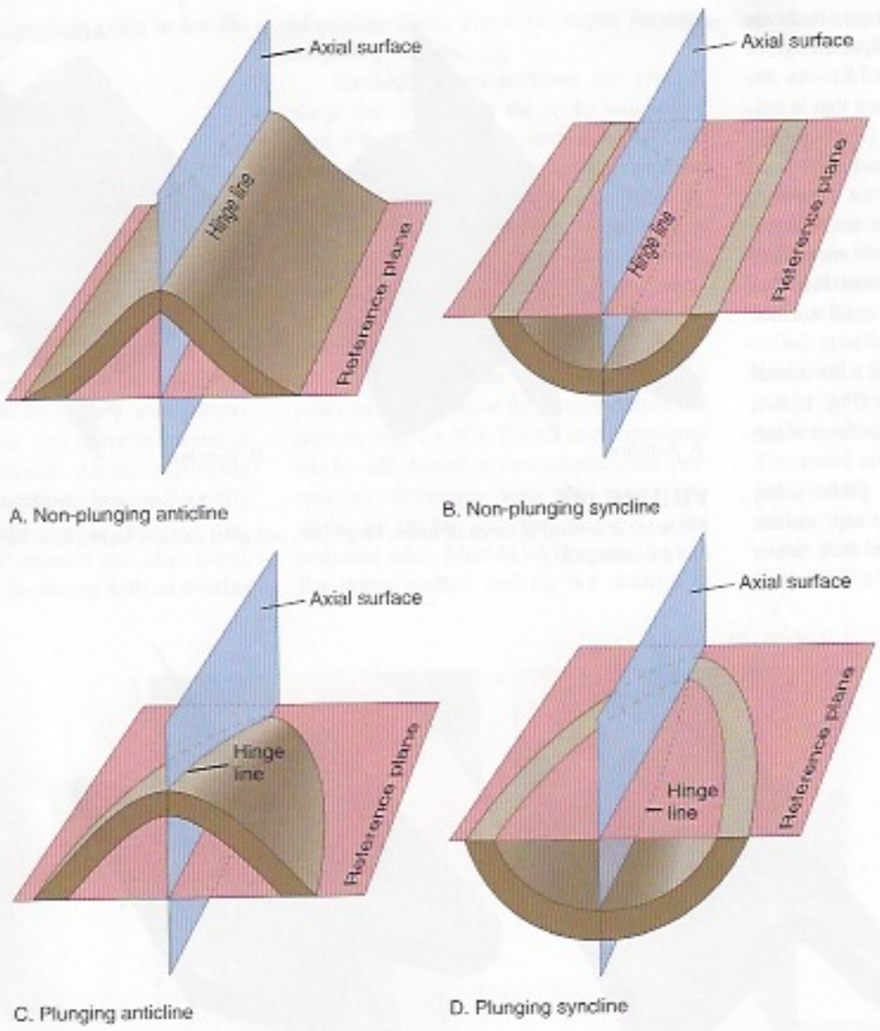

FIGURE 14.8
Non-plunging folds have horizontal hinge lines, as in a non-plunging anticline (A) and a non-plunging syncline (B). Plunging folds have inclined hinge lines, as in a plunging anticline (C) and a plunging syncline (D). Axial surfaces are vertical, and reference plane is horizontal.

surface, such as that approximated by the surface of the Earth, the contacts between adjacent beds are straight lines (Fig. 14.9A, B). When plunging folds intersect a horizontal surface, the contacts between adjacent beds are curved lines. In a plunging anticline, the contacts bend so that they "point" in the direction of plunge, whereas in a plunging syncline, they "point" in the direction opposite the plunge (Fig. 14.9C, D).

Using the Principle of Superposition (Chapter 13), you can see that in an eroded syncline, the *youngest* beds appearing on the surface are in the center of the syncline (Fig. 14.9B, D). In an eroded anticline, the *oldest* (originally deepest) beds are in the center (Fig. 14.9A, C).

Domes and **basins** have cross sections like anticlines and synclines, respectively, but are approximately circular or oval in map view (Fig. 14.10). Beds in domes dip outward in all directions, and like anticlines, the oldest rocks are found in the center. Similarly, the youngest rocks in basins are in the center, just as they are in synclines, and beds dip inward. Domes and basins may be quite large, with diameters of 100 km or more.

Faults

Faults are breaks or fractures along which movement has occurred. The rocks on one side of a fault have moved relative to those on the other side. Relative movement may be up and down, sideways, or a combination of the two. The amount of movement ranges from centimeters to kilometers.

Faults with inclined fault planes have **footwalls** and **hanging walls** (Fig. 14.11). The **footwall** is under the fault plane: if you dug a mine along the fault plane, you would stand on the footwall. The **hanging wall** is above the fault plane: In a mine, it would hang above your head.

Faults are classified according to their relative motion. When the hanging wall has dropped relative to the footwall, it is a **normal fault** (Fig. 14.11A). When the hanging wall has been pushed up relative to the footwall, it is a **reverse fault** if the fault