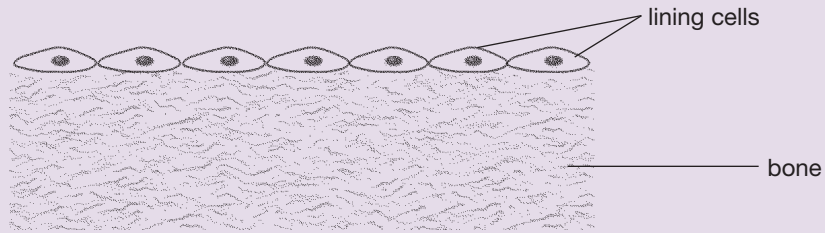
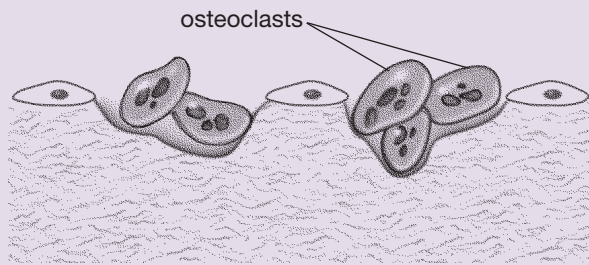


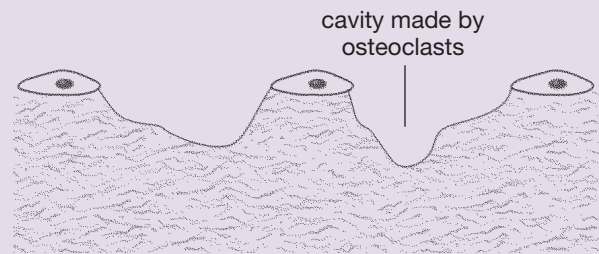
## How Bones Grow and Change



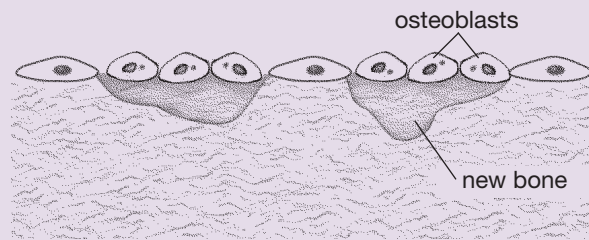
**Resting Phase**



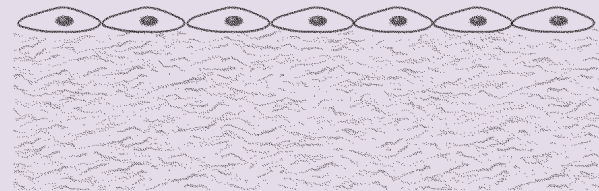
**Bone Resorption**



**Resorption Complete**



**Bone Formation**



**Formation Complete**

Many people think of their bones as stable structures that do not change with time. But bone is a living tissue that undergoes a constant process of renewal. In this process, called bone remodeling, old bone is resorbed (broken down) and new bone is formed.

The framework of each bone is a matrix, or scaffold, that is mostly made up of collagen. Collagen is soft but hardens with the deposition of calcium and phosphorus, which enter the bone from the bloodstream. A regular supply of these minerals is required to keep bones strong.

In the resorption stage of bone remodeling, special cells called osteoclasts invade the surface of the bone and

remove both the matrix and minerals, leaving small cavities in the bone surface. Resorption is followed by the bone formation stage, which is carried out by another set of special cells, called osteoblasts, that fill in the cavities with new bone.

When bone loss outpaces bone formation, the result is low bone mass or density. (Bone mass refers to the amount of bone tissue in the body, while bone density refers to how tightly the bone is packed.) Bones that lack mass or density are porous and weak. A person is said to have osteoporosis when bones become fragile enough to break easily.

## Spinal Deformities

The three basic types of spinal deformities are kyphosis, lordosis, and scoliosis. Kyphosis, an abnormal accentuation of the usual backward curvature of the thoracic spine, is commonly referred to as a humpback or hunchback. (It may, in rare instances, also