

Table 3.1. The seven crystal systems and 14 Bravais lattices in three dimensions

	Simple	Base Centered	Body Centered	Face Centered
Cubic $a = b = c$ $\alpha = \beta = \gamma = 90^\circ$				
Tetragonal $a = b \neq c$ $\alpha = \beta = \gamma = 90^\circ$				
Orthorhombic $a \neq b \neq c \neq a$ $\alpha = \beta = \gamma = 90^\circ$				
Monoclinic $a \neq b \neq c \neq a$ $\alpha = \gamma = 90^\circ$ $\beta \neq 90^\circ$				
Triclinic $a \neq b \neq c \neq a$ $\alpha, \beta, \gamma \neq 90^\circ$ $\alpha \neq \beta \neq \gamma \neq \alpha$				
Hexagonal $a = b \neq c$ $\alpha = \gamma = 90^\circ$ $\beta = 120^\circ$				
Rhombohedral $a = b = c$ $\alpha = \beta = \gamma \neq 90^\circ$				

reflection (with respect to a plane passing through a lattice point), and combinations of these.

For 2D Bravais lattices, there are four *systems* (the oblique one shown in Fig. 3.8, the square, the hexagonal, and the two *types* of rectangular all shown in Fig. 3.9) and five *types*; the two different types of rectangular lattice belong to the same system.

In three dimensions, there are *seven systems* and *14 types* of Bravais lattices (see Table 3.1).