Within the framework of Bishop’s constructive mathematics, we introduce the notion of (pre–)apartness between points and subsets in an abstract set $X$, and derive some elementary properties. Each point–set apartness gives rise to a topology—the apartness topology—on $X$, and to several constructively distinct continuity properties.

We extend the notion of point–set pre–apartness axiomatically to one of pre–apartness between subsets of a nontrivial set $X$. In contrast to the counterpart classical theory, it turns out that the constructive theory of apartness spaces is larger than that of quasi–uniform spaces. (Received January 10, 2005)