Concepts of regularity in dimension two and three

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I will discuss different approaches to the regularity of 2D and 3D objects such as maps, hypermaps, tilings and solids. The "regularity" can be approached from the point of view of combinatorics, geometry and group theory. Several related well known and less known classification results of regular objects will be presented. These include existence results on hypermaps of type (k, m, n), classification of spherical tilings by regular, or by congruent polygons (monohedral tilings), classification of solids with faces being regular polygons (Johnson's solids).