It is of interest to fabricate curved surfaces in three dimensions from easily available homogeneous material in the form of flat sheets. This talk will report on three generic methods developed by us for molding a flat sheet of thermo-responsive plastic by selective contraction induced by targeted heating. These methods do not involve any cutting and gluing which is a property they share with origami. The first method is inspired by tailoring which is the usual method for making garments out of plain pieces of cloth. The second method aims to bring about the desired new Riemannian metric via an appropriate pattern of local contractions. The third method is based on triangulation, and seeks to induce the desired local distances. The second and the third methods, and also the first method for the special case of surfaces of revolution, are algorithmic in nature. Along with an account of these methods, I will show photographs of different shapes that we physically molded by these methods. This is joint work with Shankar Ghosh and Harsh Jain of TIFR, Mumbai.