

Biological Applications of Symmetry for the Classroom

Patrick Ross
Department of Biology
Natural Science Division
Southwestern College
Winfield, KS 67156

Many organisms exhibit a superficial level of bilateral symmetry. However, upon closer examination, many individual characteristics exhibit some levels of asymmetry. Some well studied examples include tail feathers in bird, wing veination patterns in insects, and human facial characteristics. In many cases, the degree of asymmetry is thought to be a measure of developmental precision, thereby allowing an assessment of the degree to which the genome can resist the variability present in the environment. Higher levels of asymmetry have been found in populations subjected to poor environmental quality and other stressful situations. In addition, experiments on mating behavior have shown a preference for mates with more symmetric characteristics. Participants will be introduced to the concept of fluctuating asymmetry. Participants will measure and quantify the degree of asymmetry on a variety of characteristics. Applications in the areas of assessment of environmental stress and mating behavior will be presented that can be used in classroom situations.