

1056-Z1-2039 **Dylan W Helliwell*** (helliwed@seattleu.edu), WA , and **Peter Littig**, WA. *Rolling Archimedean Dice.*

What is the probability of landing on a triangular face when rolling a cuboctahedron? How likely is it to land on a hexagonal face when rolling a truncated tetrahedron? For Platonic dice, symmetry is all one needs to predict the likelihood of landing on a given face. While the consideration of symmetry allows us to say some things about Archimedean dice, it is not enough to determine all probabilities for a given solid. Our goal is to create a simple model to predict these probabilities. Examples show that merely looking at the relative areas of the various faces is insufficient. We provide two alternate approaches, one based on spherical area and the other on “energy well area.” In addition to discussing the strengths and weaknesses of these approaches, we also discuss some statistical analysis in relation to our models. Finally, we note that the models we present can be extended to shapes more general than the Archimedean solids. (Received September 22, 2009)