

Dicey Exploration

A session for Sri Sri Ravishankar Vidya Mandir Students

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1. The standard dice has a cubical shape. However, there are dice of other shapes. We give images of three dice below¹. What is common among all these shapes?



2. Construct your own dice. Are all the numbers equally likely? Give at least one example of a dice where all numbers are not equally likely.
3. Consider a triangular prism as shown below. Assume that the sides of the triangle are of unit length. Show that if you choose height carefully, you can ensure that all sides are equally likely. Are the surface areas of the sides equal when all sides are equally likely?



4. Are all sides equally likely for the dice given below?



5. Notice that all faces of the above dice didn't have the same shape. This distinguishes the above dice from the dice in the first figure. But, the faces are still regular (equilateral triangle and square), unlike the triangular prism. Can you construct other shapes like that? Are all sides equally likely?

¹In a tetrahedral dice, the outcome is the number at the apex - as there is no top face.