Activity 1: Order from randomness

Usually when random processes are at work, a system becomes more and more disordered. But there are many situations when random processes lead to unusual kinds of order.

1. Sierpinski gasket game:
   (a) On a piece of paper, mark three points far away from each other to make a large triangle. Label one point (1,2), another (3,4), and the last (5,6).
   (b) Select any point inside the triangle.
   (c) Roll a die to select one of the corners of the triangle at random. Measure the distance from the current point to the corner and mark a new point exactly halfway between.
   (d) Using this new point, repeat the process. (Go back to 1c.)
   (e) Continue the process until you think you know what the final pattern will look like.
2. Playing the chaos game by computer speeds things up. This java applet plays exactly the same game you played with the whiteboard, dice, and ruler—only much faster.