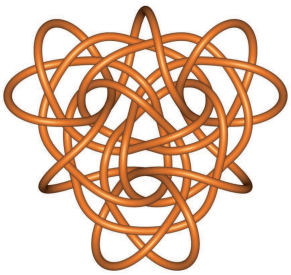
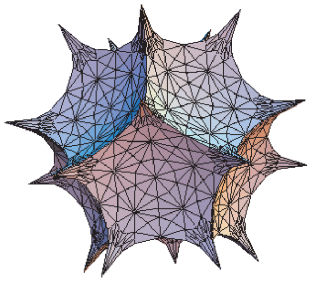
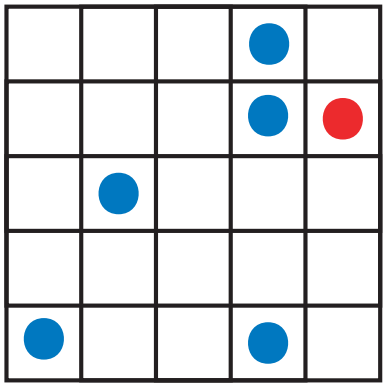


Willamette Math Problem of the Week



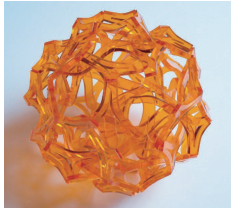
February 11 2008
Jumping Mad



On the 5×5 board shown, any of the 6 red or blue pieces can jump over one or more adjacent pieces and land on the next open space. Jumped pieces are not removed from the board, and diagonal jumps are not allowed. Find a sequence of moves that ends with the red piece on the lower right-hand square.

Submit all solutions before the appearance of the next problem to Josh Laison in person, by e-mail (jlaison@willamette.edu), or by candygram. The first correct solution gets a prize; all correct solutions get fame and glory. Preference for the prize goes to problem-solvers who haven't won one yet.

Solution to *Playing with Pasta*:
We think of tying the ends of pasta one at a time. At each stage, we pick up a random end and tie it to another random end. When we pick up the ith end, there are $100 - i$ ends available to tie it to, and exactly one of them creates a loop. So the expected number of loops created by the ith pasta end is $\frac{1}{100-i}$. Since we only pick up the odd-numbered ends, the expected number of loops created in total is $1/99 + 1/97 + \ldots + 1/3 + 1/1 \approx 2.94$.



Past problems of the week, solutions, and solvers can be found at http://www.willamette.edu/~jlaison/problem.html