1047-05-401 **H. A. Kierstead*** (kierstead@asu.edu), Department of Mathematics and Statistics, Arizona State University, Tempe, AZ , and **A. V. Kostochka** (kostochk@math.uiuc.edu), Department of Mathematics, University of Illinois, Urbana, IL 61801. *Graph Packing, Game Coloring and 2-Coloring Number.*

The game coloring number $\mathrm{gcol}(G)$ of a graph G is the least k such that if two players take turns choosing the vertices of a graph then either of them can insure that every vertex has less than k neighbors chosen before it, regardless of what choices the other player makes. Clearly $\mathrm{gcol}(G) \leq \Delta(G) + 1$. Sauer and Spencer proved that if two graphs G_1 and G_2 on n vertices satisfy $2\Delta(G_1)\Delta(G_2) < n$ then they pack, i.e., there is an embedding of G_1 into the complement of G_2. We improve this by showing that if $(\mathrm{gcol}(G_1) - 1)\Delta(G_2) + (\mathrm{gcol}(G_2) - 1)\Delta(G_1) < n$ then G_1 and G_2 pack. To our knowledge this is the first application of such coloring games to a non-game problem. (Received February 03, 2009)