# Packing It In

Packing items into bins of given capacities may not sound important (unless you're packing for a trip), but the topic of *bin packing* includes situations such as allocating blocks of computer memory and scheduling airline flights as well as traditional problems like loading trucks. Researchers use areas of mathematics (such as number theory, geometry, and probability) to solve packing problems so that time and storage – both physical and electronic – can be used efficiently.

Mathematicians proved that bin packing problems are "complex," and a practical algorithm that gives an optimal solution to all packing problems appears unlikely. Yet even though there may never be a "fast" general solution, mathematicians still seek to improve packing algorithms, saving industry time and money. One such result demonstrates that one of the simplest packing algorithms, first loading the biggest things that fit, is always within about 20% of the best solution possible.

**For More Information:** "Approximate Solutions to Bin Packing Problems," Coffman, E. G., Jr., J. Csirik, and G. Woeginger, *Handbook of Applied Optimization*, P. Pardalos and M. Resende, eds., 2002.
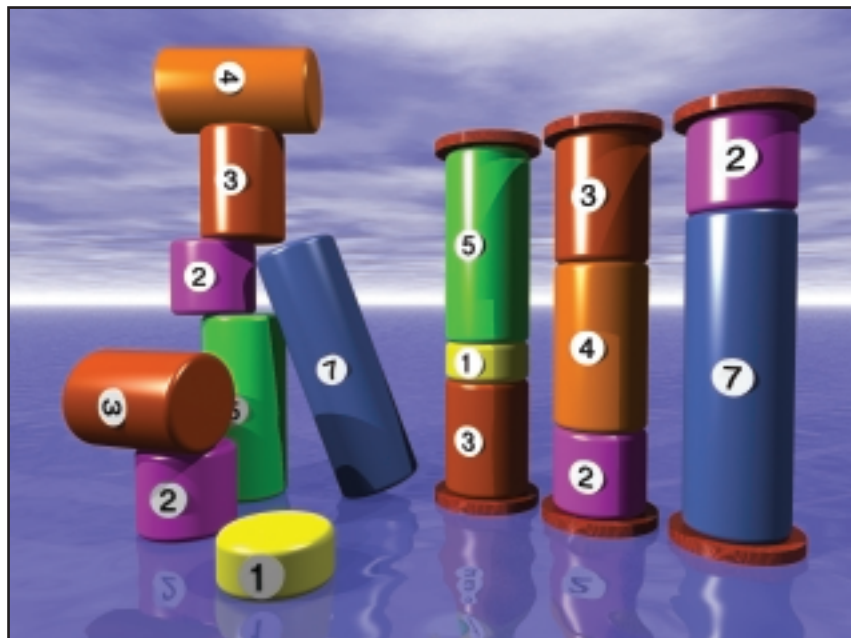


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