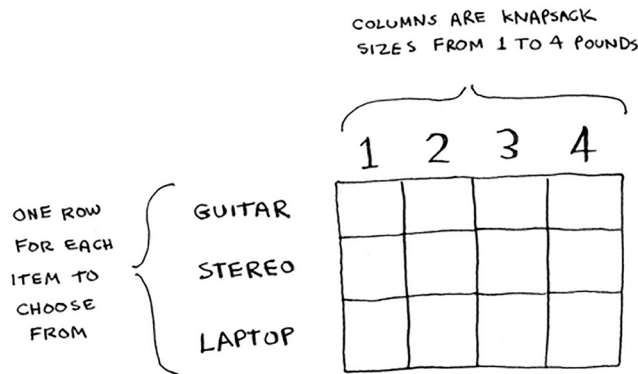


Every dynamic-programming algorithm starts with a grid. Here's a grid for the knapsack problem.



The rows of the grid are the items, and the columns are knapsack weights from 1 lb to 4 lb. You need all of those columns because they will help you calculate the values of the sub-knapsacks.

The grid starts out empty. You're going to fill in each cell of the grid. Once the grid is filled in, you'll have your answer to this problem! Please follow along. Make your own grid, and we'll fill it out together.

### The guitar row

I'll show you the exact formula for calculating this grid later. Let's do a walkthrough first. Start with the first row.

	1	2	3	4
GUITAR				
STEREO				
LAPTOP				

This is the *guitar* row, which means you're trying to fit the guitar into the knapsack. At each cell, there's a simple decision: do you steal the guitar or not? Remember, you're trying to find the set of items to steal that will give you the most value.

The first cell has a knapsack of capacity 1 lb. The guitar is also 1 lb, which means it fits into the knapsack! So the value of this cell is \$1,500, and it contains a guitar.