

Diadromous fish migrate from the sea to fresh water in order to spawn. When the migration route has been blocked (due to a man-made dam or other barrier), structures called fish ladders can be constructed to help the fish complete their journey.

In these puzzles, you will design a fish ladder using large, pre-cast columns. These steel-reinforced concrete columns can be stacked one on top of another if necessary, but cannot be cut.

In the completed ladder, the water level must step down in one-foot increments. (The horizontal lines on the figure and in the columns indicate these one-foot increments.) The columns can only be inserted at the locations marked by the dots. You may not need to use all of the columns provided.

Because there is a two-foot difference between the water levels at the highest and lowest barriers, you must add one barrier to break that drop into one-foot steps. Depending on whether you had a column of height three, four, or five feet, you would use one of these solutions:

Keep in mind exactly how many and what type of columns you are given to solve each puzzle. For instance, if you are only given three-foot and four-foot columns, then there is no way that you can make a five-foot column. As another example, if you are only given one four-foot column, you may want to try to determine where that column must be placed.

