The Mann-Whitney Test 'Recipe'

1. Identify the two samples information you are given
2. Confirm that the data is non-paired, and so the Mann-Whitney test is valid to use
3. State the assumption that the samples have come from distributions that have the same shape
4. State what H_0 and H_1 are
5. State 'Assume H_0 to be true'
6. Decide on the alpha value and whether it's a one or two-tailed test
7. Merge the data into one list, and write out in ascending numerical order
8. Rank the data, but watch out for any tied ranks
9. Calculate the rank sum of the smallest sample
10. Thinking about H_0 and H_1, check what you'll do if the rank sum is small (or large)
11. Calculate the minimum possible value for the rank sum, and the maximum possible value for the rank sum
12. Sketch a diagram showing the minimum, the maximum, and the actual value of the rank sum that you obtained

EITHER
- Use the data booklet to find the **critical value** of the rank sum for the alpha value that you chose to use, and add this to your diagram.
- Determine whether the value of our rank sum is in the critical region, or not.

OR
- Using the dot plots of distributions, work out the **theoretical probability** of obtaining the rank sum value that you obtained, or a more extreme value.
- Compare this probability to the alpha value, to determine if you have an extreme result, or not

THEN
- Decide whether we have evidence to accept H_0, or to reject H_0 in favour of H_1.
- Write a concluding sentence that makes clear reference to the context of the data, and uses the phrase 'we have evidence to suggest....'