

2004Q2

- (a) with 12 volunteers and a desired block size of 2, there will be 6 blocks, with volunteers in each block having similar ages:

<u>Block #</u>	<u>volunteer #s</u>	<u>ages</u>
1	1, 2	20, 21
2	10, 11	23, 24
3	8, 9	44, 44
4	3, 12	46, 47
5	4, 7	58, 60
6	5, 6	61, 62

This pairing makes the ages as similar as possible within the blocks (and ignores gender).

- (b) if both age and gender must be considered, then we must keep ages as close as possible but only include one gender in each block:

<u>Block #</u>	<u>volunteer #s</u>	<u>genders</u>	<u>ages</u>
1	2, 10	female, female	20, 24
2	8, 12	female, female	44, 46
3	4, 5	female, female	60, 62
4	1, 11	male, male	21, 23
5	3, 9	male, male	44, 47
6	6, 7	male, male	58, 61

- (c) No. In a blocked design experiment each block must have some subject receiving each of the treatments, with treatments assigned to groups randomly selected from the subjects in each block. With two volunteers in each block, one volunteer must be randomly selected to receive the current formula and the other the new formula (within each of the 6 blocks). A random process must be used, for example, within each block the two volunteers' names could be written on identical slips of paper, the slips put in a box and randomized, and one slip drawn out - whichever name is drawn, that volunteer will receive the new formula. Repeat this for the remaining 5 groups.