Teams then check if their number sentences are correct. You score if your sentence is correct. The score is the result of the calculation on the left of the inequality sign (shaded boxes).

1. Imagine that the numbers 1, 2, 3, 4, 5, 6, 7 and 8 have been thrown. Where would you place them in order to get the highest possible score?
2. Can you provide a convincing argument that you have arranged the numbers in the best possible way?
3. Can you give an algorithm for all 4 versions?

Sum-sum

7 3 + 6 1 < 8 2 + 5 4

Take-take

7 5 - 1 4 < 8 6 - 2 3

Take-sum

8 7 - 1 2 < 6 3 + 5 4

Sum-take

2 5 + 4 7 < 8 6 - 1 3

sum sum

Step 1: Take the top four numbers.

Step 2: Arrange them on the tens in a way that the right side is greater or equal to the left.

Step 3a: if the right side is greater than the left then arrange the left side ones as high as you can.

Step 3b:if the right side is equal to the left then arrange the left ones close but less to the right side’s.

Step 4: if you can not make a right inequality, go back to step 1 and make the next biggest number on the left side.

take take

Step 1: Take the top two numbers and the bottom two numbers.

Step 2: The tens of the minuend of the right side will have the biggest number and the tens of the minuend of the left side will have the second biggest number.

Step 3: The tens of the subtrahend of the right side will have the smallest number and the tens of the subtrahend of the left side will have the second smallest number.

Step 4a: if the difference of the tens of the right side is not equal to the left’s then we have to make the difference of the left side as high as possible.

Step 4b: if the difference of the tens of the right side is equal to the left’s then keep the subtraction of the units of the left side high but smaller than the right side’s.

take sum

Step 1: Make the highest number on the minuend

Step 2: Make the smallest number on the subtrahend

Step 3: With the remaining numbers make the biggest number and the second biggest number

Step 4: Put the biggest and the second biggest numbers in the addends on the right side

step 5: If the inequality is not true go back to step 1 and make the next highest number

sum take

Step 1: Make the highest number on the minuend

Step 2: Make the lowest number on the subtrahend

Step 3: Make the rest of the numbers big but not to big or else the number will become to big

Step 4: If the answer is wrong go back to step 1 and use the second biggest number

note: it may not always be possible for inequality to be ture