Handshake Problems

Warm-up

What is the sum?

$$1+2+3+4+5+6+7+8+9+10+11+12+13+14+15+16+17+18+19+20$$

How can you add up the numbers more efficiently then just adding them in order?

Total Handshakes

1. Suppose you shake hands with each other person in your group once and only once. How many total handshakes will there be ... if your group contains 4 people? 6 people? n people?

Odd number of handshakes

2. Divide up into groups of three, four, or five, etc.

   The challenge: each person in the group needs to shake hands an odd number of times with other people in the group. Keep track of how many times you shake hands. You can shake hands with the same person more than once, but you cannot shake hands with yourself.

   Can you do it?