

# Investigation 2.C: Dipole Balloons Answer Key

## Answers to Analysis Questions

1. When a hand moves close to the negatively charged end of the balloon, any polar molecules in the hand will rotate so that the positive ends of the molecules will be toward the balloon. Also, there will be a net migration of free electrons away from the area closest to the balloon to farther parts of the body. The hand will be left with a net positive charge. This is called charging by induction. These effects are slight but will be enough to attract the negatively charged balloon toward the hand.
2. Since the charged areas of the balloons are both negative, and the charged areas are facing each other, the balloons will move apart because of the repulsion effect of like charges.
3. Your hand still has a net positive charge. Just as it attracted one negatively charged balloon, it will also attract balloons from either side. Both balloons will move toward your hand.

## Answer to Conclusion Question

4. The negative ends of the balloons repel and are repelled by each other and are attracted to neutral and positive entities. In this way they are like polar molecules. The balloons are unlike polar molecules because the balloons have a net negative charge, but polar molecules are electrically neutral, because their positive and negative ends cancel each other.