

Data and Questions for Experiment 10

1. Using wedges and dashes, draw this molecule in at least four different orientations. In each orientation that you draw, the same two atoms should NOT both be on wedges and dashes. Practice rotating the molecule in your hands and on paper, until you are comfortable with viewing molecules in three dimensions.
2. Does molecule **A** have a plane of symmetry? Briefly explain.
3. Does the revised model have a plane of symmetry now? Find an orientation in which it is easy to draw this plane of symmetry, then draw the molecule using wedges and dashes and draw a dotted line representing the plane of symmetry.
4. Try superposing (aligning) all five atoms at the same time. Can you superpose structure **B** and structure **A**? How many atoms can you superpose at one time? Try to improve on this number until you think that you cannot get any more atoms to superpose at any one time.
5. Are structure **A** and structure **B** identical? Mark ONE: Yes No
6. How do the structures differ?
7. Are structures **C** and **D** still mirror images of each other? Yes No
8. Do **C** and **D** have internal planes of symmetry? Yes No

Name: _____

Section: _____

9. Can you superpose structures **C** and **D**?

Yes No

Are these molecules identical or different?

Identical Different

10. Using wedges and dashes, draw molecules **A** and **B**.

11. What happened to the configuration at the stereocenter? How does molecule **E** compare to molecule **B**?

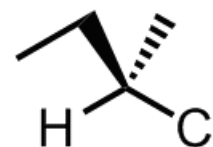
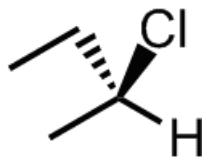
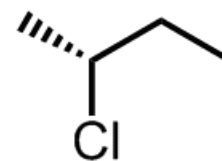
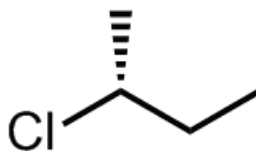
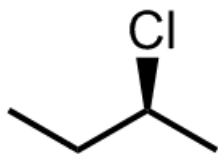
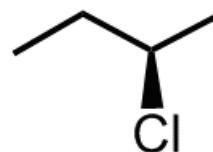
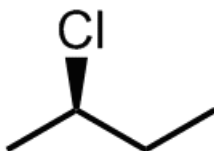
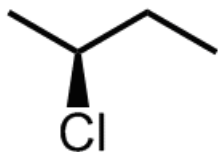
12. How does molecule **F** compare to molecule **B**? How does it compare to your original molecule **A**?

13. Repeat this process by swapping two groups at a time several more times. How many different stereoisomers do you find through this process?

Name: _____

Section: _____

14. Using your models, determine which of the structures below have the *R* configuration and which have the *S* configuration. Label each structure below with the appropriate *R* or *S* designations.



15. Determine the relationship between molecules **G** and **H**.