

Alkenes – Stereoisomerism and geometry

Pre-lesson assignment – see page 201-206.

Define

- Stereoisomerism
- E/Z isomerism
- *Cis-trans* isomerism **note – define as ‘one of the attached groups on each carbon atom of the double bond must be **the same**’**

Now watch the video tutorial on E/Z Isomerism

Make notes on stereoisomerism and geometry

1. Compare the bond angle H-C-H in an alkane and an alkene. Compare the resulting shape: Draw each in 3D using ethane and ethene as examples.
2. Explain why E/Z isomerism arises. What conditions have to be true for a molecule to have E/Z isomerism?
 - a. Use But-2-ene as an example of E/Z isomerism.
 - b. Explain why but-1-ene does not show E/Z isomerism.
3. Explain the special case of *cis-trans* isomerism.
 - a. Use pent-2-ene as an example of *cis-trans* isomerism.
 - b. Explain why 3-methylpent-2-ene does not display *cis trans* isomerism, but does display E/Z isomerism.
 - c. Does 2-methylpent-2-ene satisfy any of the criteria?
4. Briefly explain how to assign priority to groups using CIP nomenclature.
 - a. Use CHClC(CH3)CH2CH3 to demonstrate.