

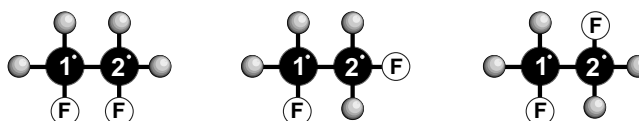
GEOMETRICAL ISOMERISM

General

- also known as **CIS-TRANS** isomerism
- a type of **STEREISOMERISM** - see Optical isomerism
- occurs in **ALKENES**
- due to **RESTRICTED ROTATION OF C=C DOUBLE BOND**
- **TWO different forms** are possible

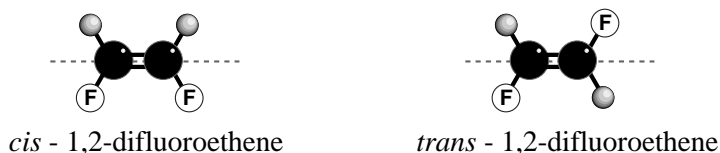
Why?

- single covalent bonds can rotate easily - the following forms of 1,2-difluoroethane are all the same.



- the energy needed to rotate double bonds is greater - causes **RESTRICTED ROTATION**
- two forms

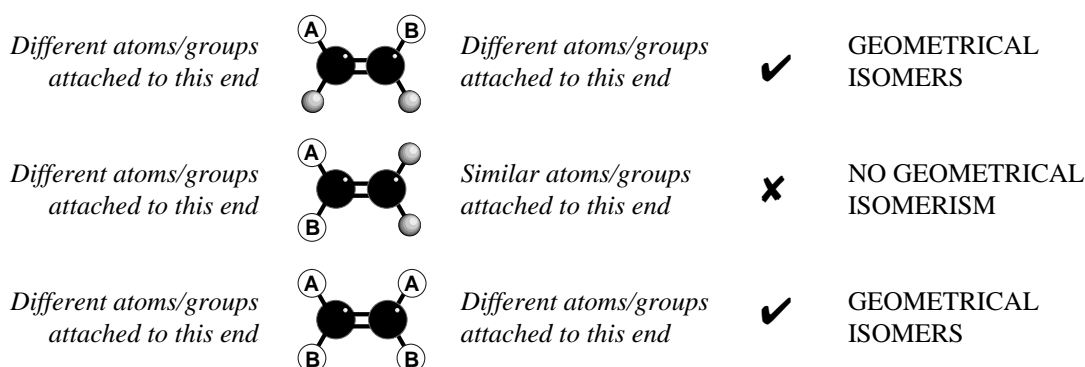
CIS	- substituents on the SAME SIDE of the C=C
TRANS	- substituents ACROSS the C=C



- isomers have different physical and chemical properties

When?

- it is easier to spot when there won't be any geometrical isomerism
- look at the carbon atoms at either end of the C=C double bond
- if either of them has two **similar atoms/groups** attached then there will be **no isomerism**


Example

Only one alkene of molecular formula C_4H_8 exhibits geometrical isomerism.

