# ORGANIC CHEMISTRY LESSON 3

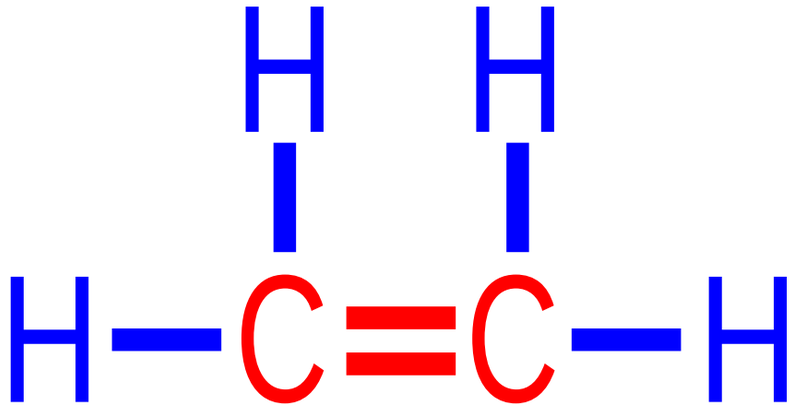
# Alkenes and Alkynes

## Primary Learning Goals

I can use IUPAC conventions to write systematic names and draw structures for alkenes and alkynes.

I can name, describe, and recognise various chemical reactions involving alkenes and alkynes, and predict the products of these reactions.

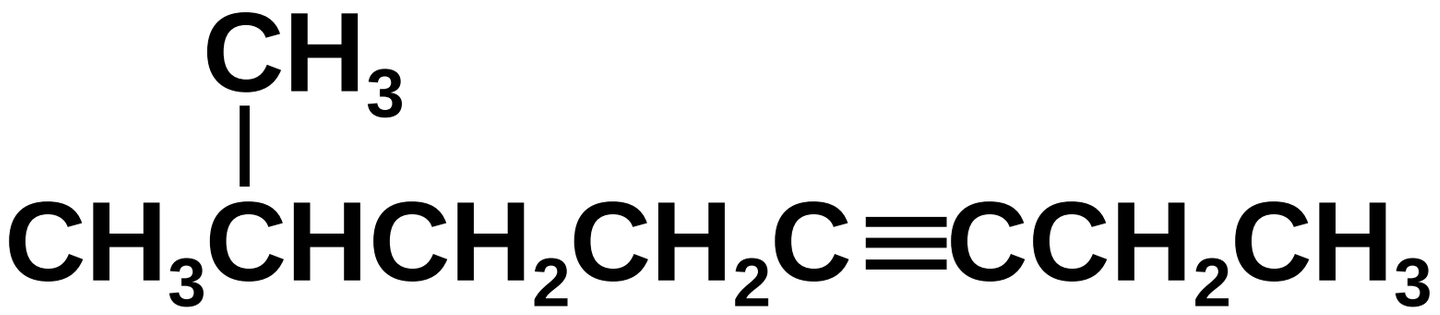
# STRUCTURE AND NOMENCLATURE
## OF ALKENES AND ALKYNES



ALKENE

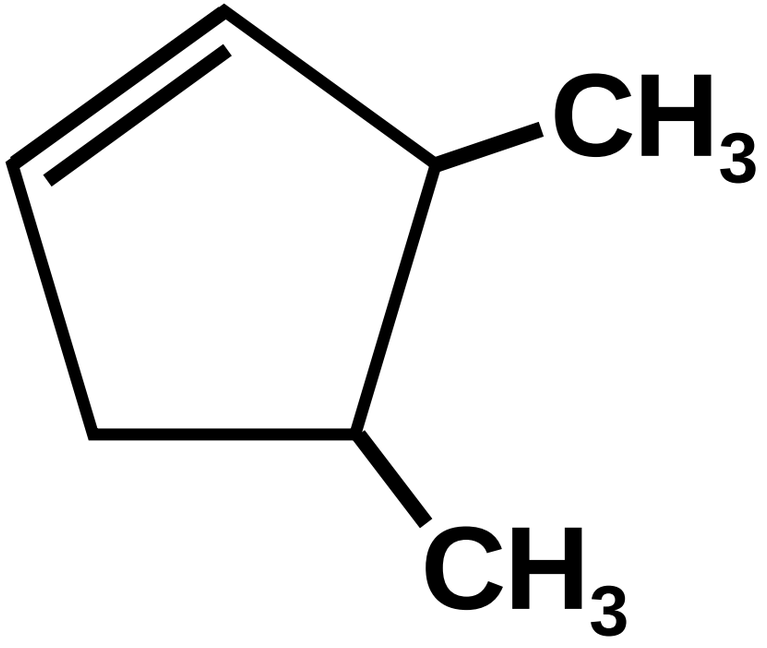
ALKYNE

**hex-2-ene**

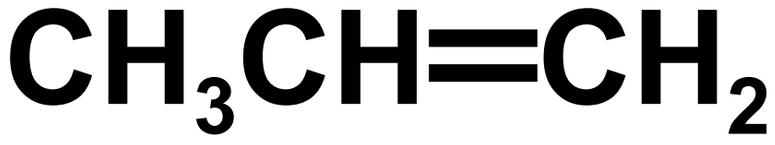


# 7-methyloct-3-yne

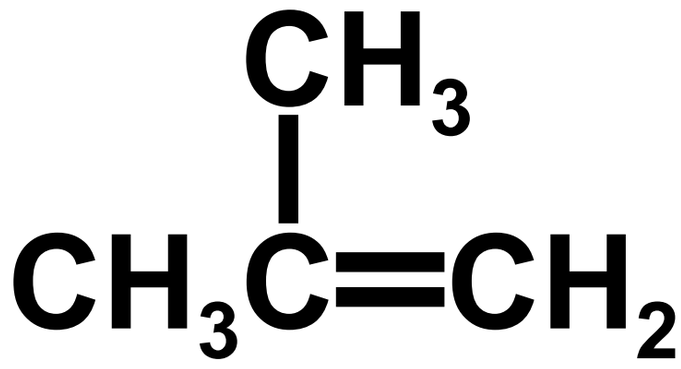
**penta-1,3-diene**




# 3,4-dimethylcyclopent-1-ene



propene



2-methylprop-1-ene

# REACTIONS INVOLVING ALKENES AND ALKYNES

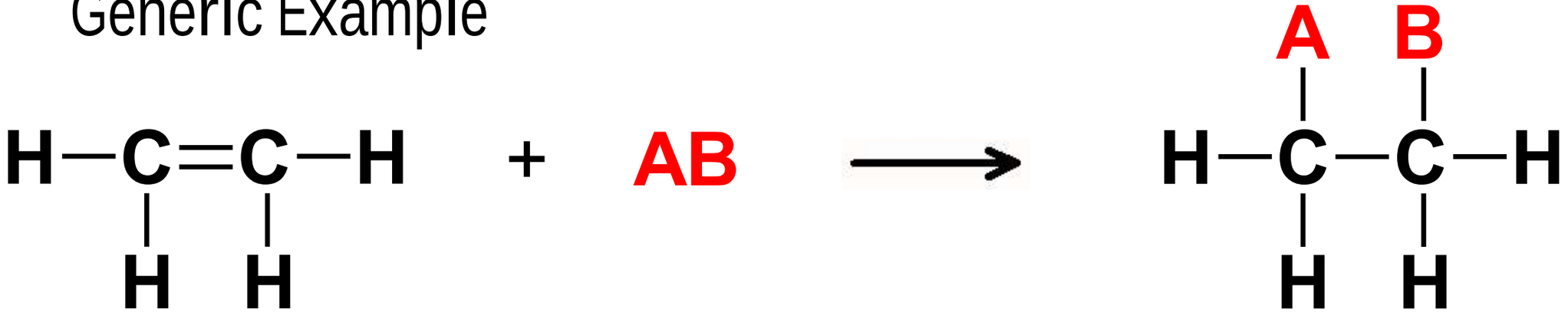
## 1. Combustion

Reaction with oxygen to produce carbon dioxide and water.

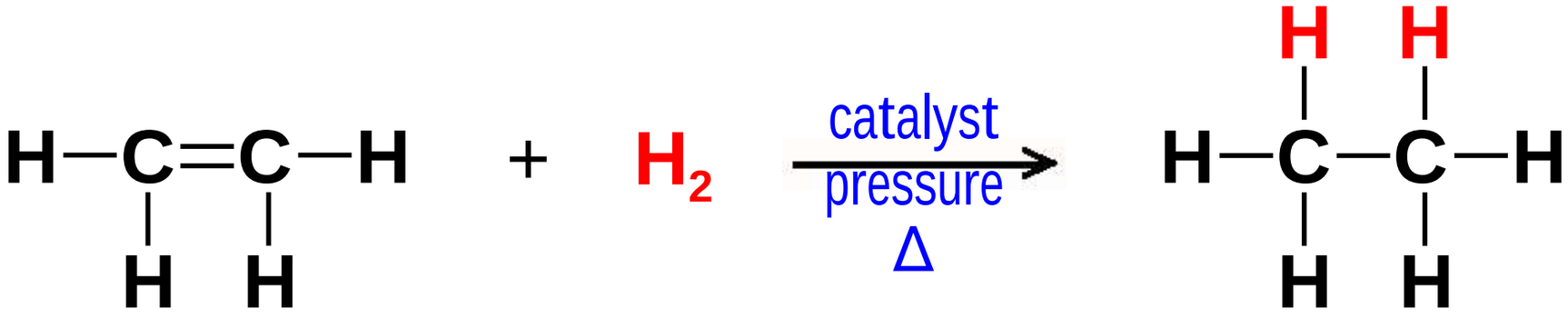
## 2. Addition Reactions

One bond of a multiple bond breaks allowing the atoms of a molecule to be added.

Generic Example



Hydrogenation (adding hydrogen)



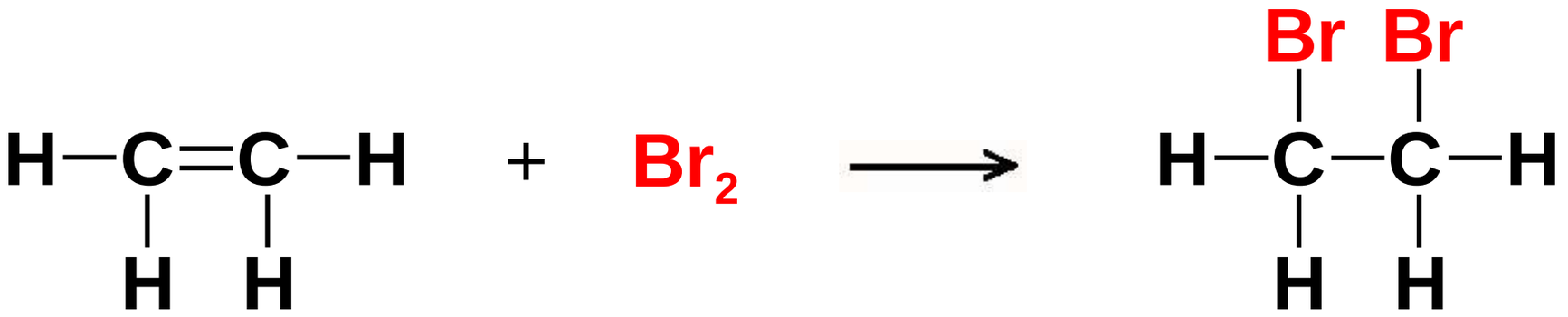

ethene
(an alkene)

unsaturated

ethane
(an alkane)

saturated

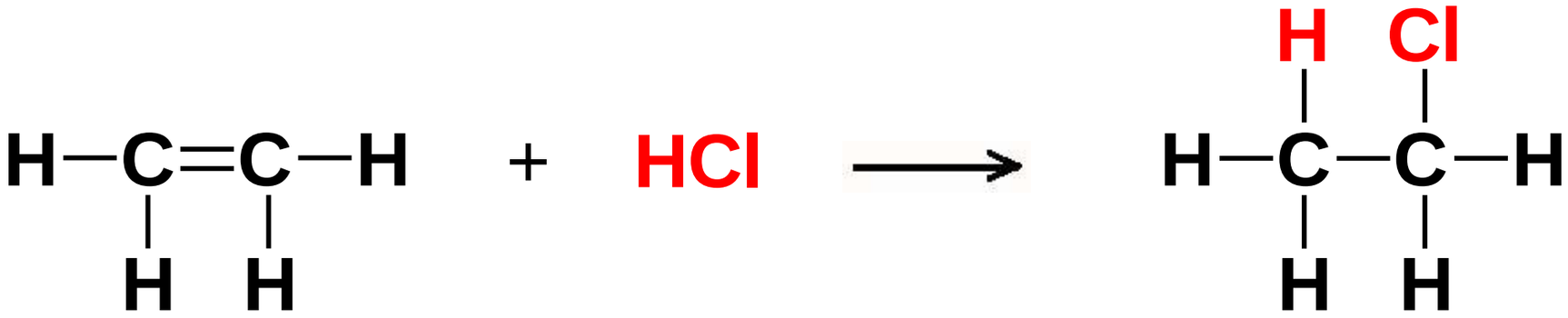
Halogenation (adding a halogen)




ethene
(an alkene)

1,2-dibromoethane
(an alkyl halide)

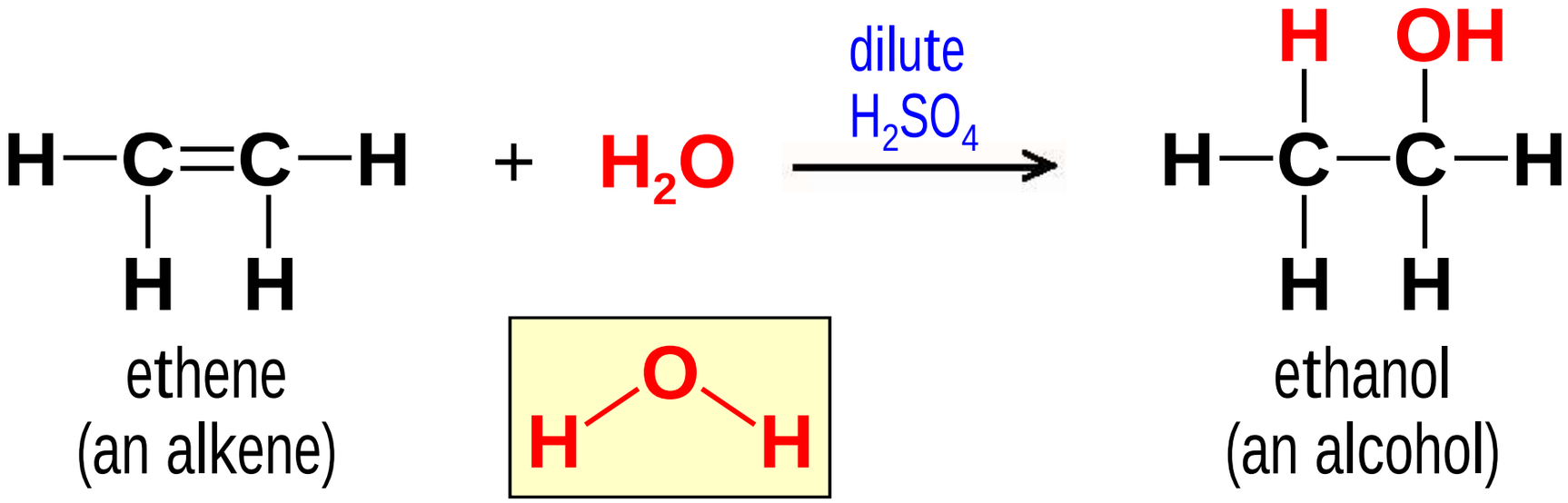
Hydrohalogenation (adding a hydrogen halide)




ethene
(an alkene)

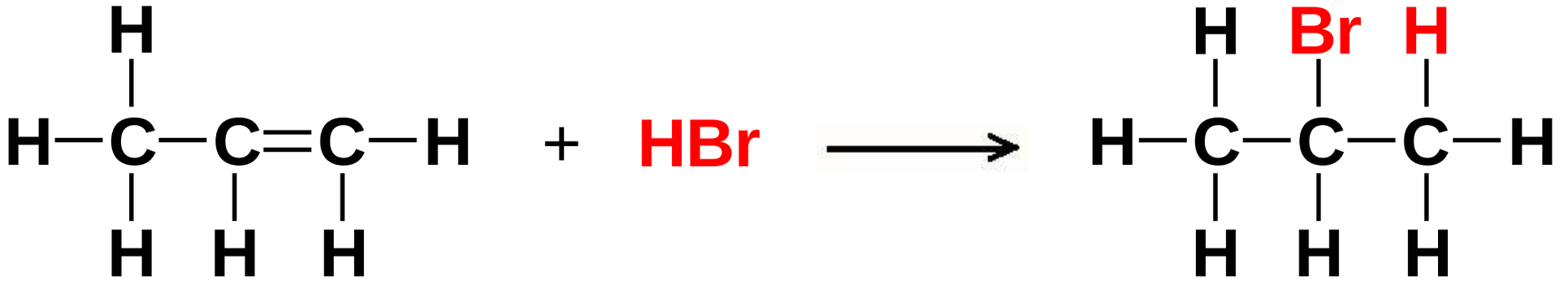
chloroethane
(an alkyl halide)

Hydration (adding water)

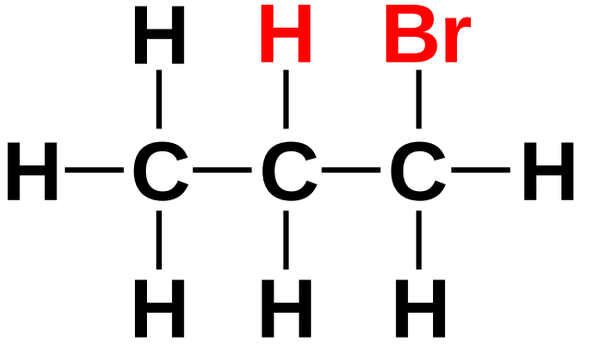


# Markovnikov's Rule

The carbon with more hydrogens gets the hydrogen most often.




major product




minor product