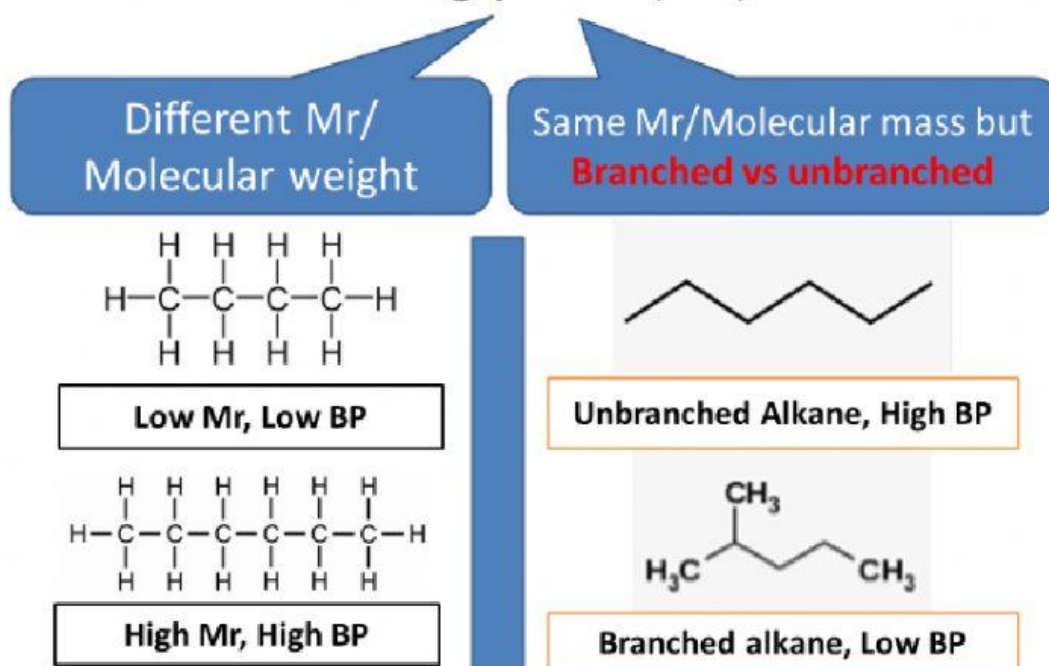


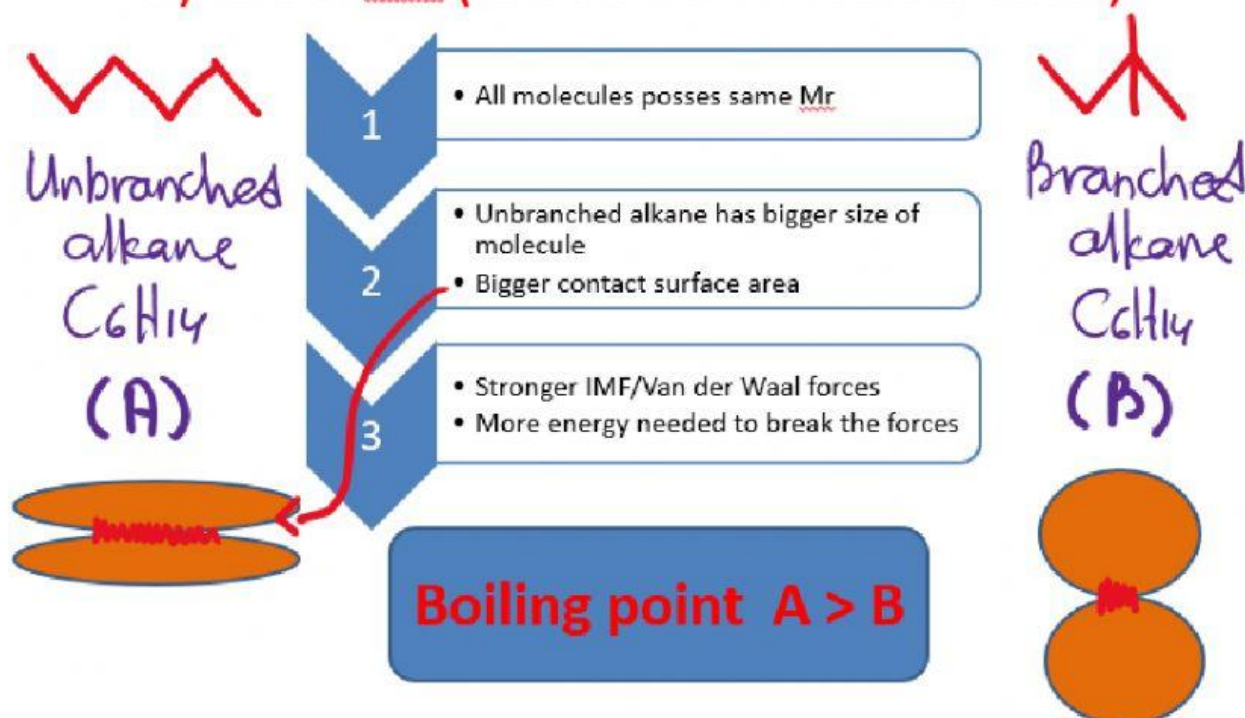
## Tutorial Physical properties

## Boiling point (BP)



## Boiling point

## b) Same Mr (Branched vs Unbranched)



Note:

Mr = Relative molecular weight

All alkanes have London Dispersion forces as their IMF

**Physical Properties**

1. Arrange the following molecules ascending order of boiling point. Explain your answer.

a) Heptane vs 2-methylhexane



Heptane  
Unbranched  
 $C_7H_{16}$

vs



2-methylhexane  
Branched  
 $C_7H_{16}$

Heptane and 2-methyl hexane have similar \_\_\_\_\_.

Heptane is \_\_\_\_\_ alkane while 2-methylhexane is \_\_\_\_\_ alkane.

Unbranched alkane has \_\_\_\_\_ molecule than branched alkane.

Heptane has \_\_\_\_\_ contact surface area than 2-methylhexane.

\_\_\_\_\_ has stronger Intermolecular forces than \_\_\_\_\_.

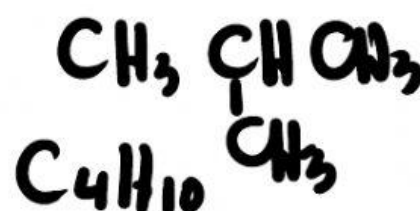
\_\_\_\_\_ energy is needed to break the forces in \_\_\_\_\_.

Higher boiling point for \_\_\_\_\_.

b) Butane vs 2-methylpropane



vs



Butane and 2-methylpropane have similar \_\_\_\_\_.

Butane is \_\_\_\_\_ alkane while 2-methylpropane is \_\_\_\_\_ alkane.

Unbranched alkane has \_\_\_\_\_ molecule than branched alkane.

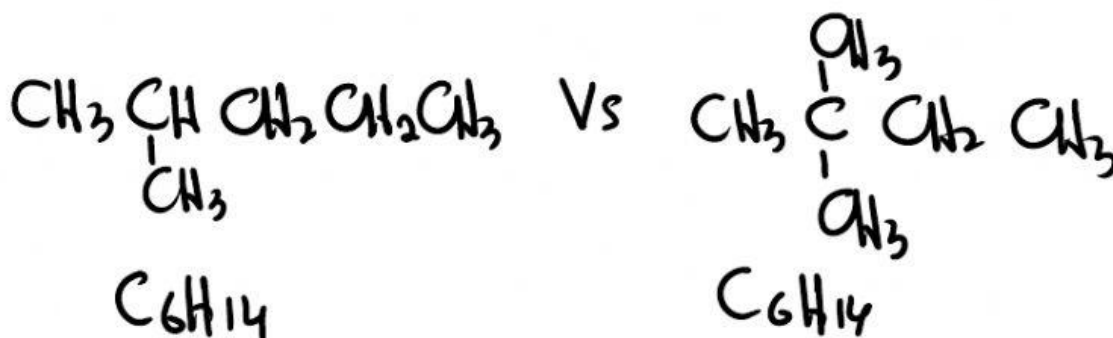
Butane has \_\_\_\_\_ contact surface area than 2-methylpropane.

\_\_\_\_\_ has stronger Intermolecular forces than \_\_\_\_\_.

\_\_\_\_\_ energy is needed to break the forces in \_\_\_\_\_.

Higher boiling point for \_\_\_\_\_.

## c) 2-methylpentane vs 2,2-dimethylbutane



2-methylpentane and 2,2-dimethylbutane have similar \_\_\_\_\_.

Both compounds are \_\_\_\_\_ alkane but 2,2-dimethylbutane has more branches than 2-methylpentane.

2-methylpentane has \_\_\_\_\_ molecule than 2,2-dimethylbutane.

2-methylpentane has \_\_\_\_\_ contact surface area than 2,2-dimethylbutane.

\_\_\_\_\_ has stronger Intermolecular forces than \_\_\_\_\_.

\_\_\_\_\_ energy is needed to break the forces in \_\_\_\_\_.

Higher boiling point for \_\_\_\_\_.