

The background is a solid dark blue. It is decorated with several 3D molecular models consisting of spheres (purple, yellow, blue, pink) connected by thin grey rods. These models are scattered around the edges of the slide. In the top right and bottom left corners, there are white grid patterns that appear to be part of a larger structure, possibly a staircase or a framework.

10<sup>th</sup> grade

# Dynamic equilibrium

L.O: To be able to analyze the conditions required for dynamic equilibrium and evaluate effect of pressure

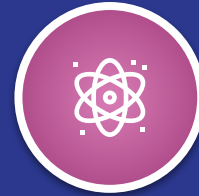
# Starter



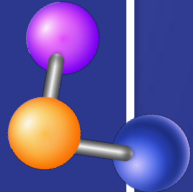
**K: what do you  
know about  
reversible  
reaction?**



**W: lets learn  
about equilibrium**



**C: daily life: see  
saw , Tug of war  
Physics:  
balanced force**



# **Group Activity -1 : Reading comprehension**

Read the given passage and answer the questions as per the group assigned :

## **Group A and B:**

- 1. Define dynamic equilibrium**
- 2. Analyze the shape of the rate – time graph for the equilibrium reaction.**

## **GROUP C and D:**

- 1. Predict the conditions for dynamic equilibrium**
- 2. Explain the shape of the concentration time graph**



**5:00**

## KEY WORDS :

New information


### Dynamic Equilibria

- This is the stage in reversible reaction where the rate of the forward reaction is equal to the rate of the backward reaction.

the concentrations of reactants and products remain constant

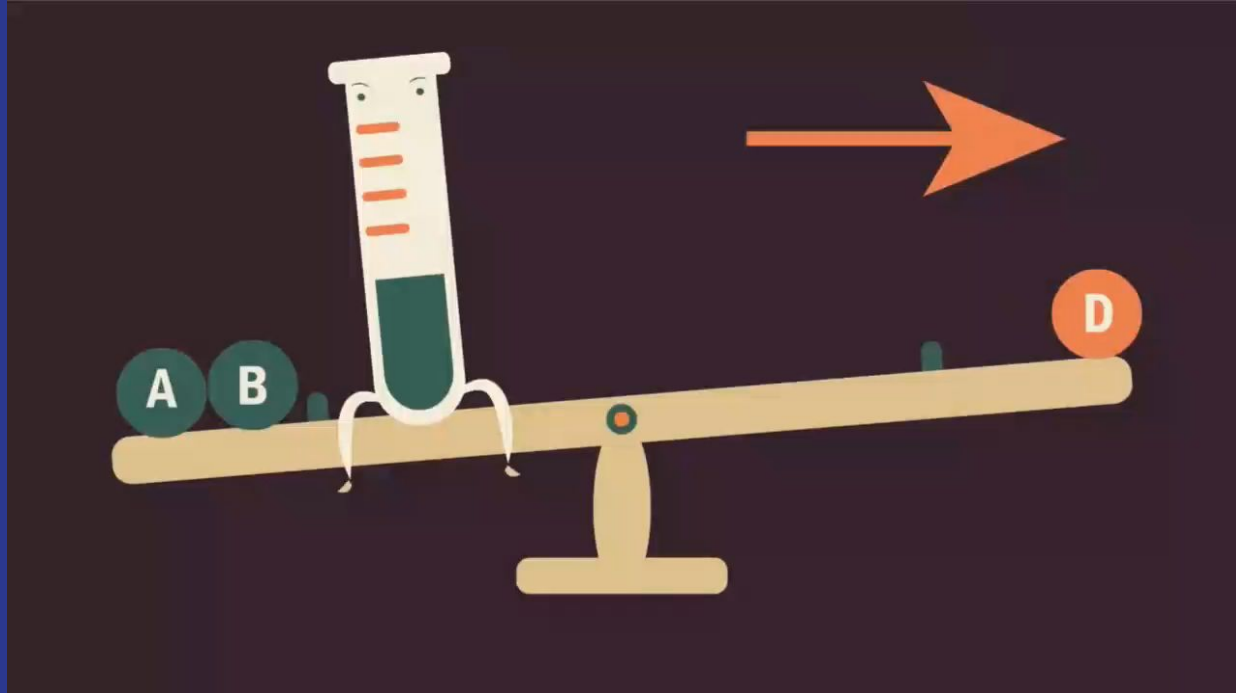
## THINK AND SHARE

DO YOU THINK THE POSITION OF EQUILIBRIUM IS FIXED ?



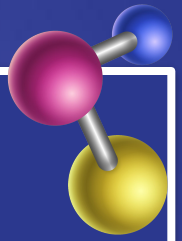
**EQUILIBRIUM ALWAYS TRIES TO MAINTAIN A  
BALANCE AND OPPOSE ANY CHANGE  
APPLIED TO IT . POSITION OF EQUILIBRIUM  
CAN BE CHANGED BY CHANGING PRESSURE.  
LET'S SEE HOW**

# LET'S WATCH A VIDEO AND DISCUSS



## Effects of pressure

CHANGE	HOW THE EQUILIBRIUM SHIFTS
INCREASE IN PRESSURE	EQUILIBRIUM SHIFTS IN THE DIRECTION THAT PRODUCES THE <b>SMALLER</b> NUMBER OF MOLECULES OF GAS TO DECREASE THE PRESSURE AGAIN
DECREASE IN PRESSURE	EQUILIBRIUM SHIFTS IN THE DIRECTION THAT PRODUCES THE <b>LARGER</b> NUMBER OF MOLECULES OF GAS TO INCREASE THE PRESSURE AGAIN



**Think & Share- complete the different levels  
of questions given in the flash cards**

**7:00**





# Plenary

**01**

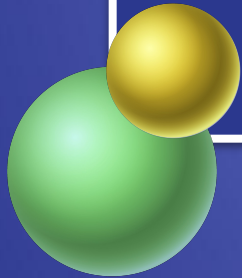
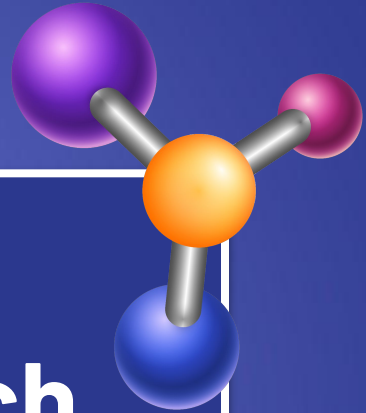
**Dynamic equilibrium : a reaction in which rate of forward and backward reactions are equal and the concentration of reactant and products are constant**

**02**

**The position of equilibrium can be shifted by changing pressure . Increasing pressure shift equilibrium to side with a smaller number of moles of gases. Decreasing pressure shifts the equilibrium to side with a greater number of moles of gases**

# Homework: Research

Research on static equilibrium



# AFL

1.

Describe **two** features of an equilibrium.

.....

2.

The plunger of the gas syringe is pushed in. The position of equilibrium does not change. The colour of the gaseous mixture turns darker purple.

The temperature remains constant.

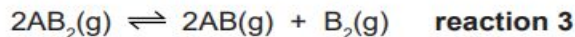
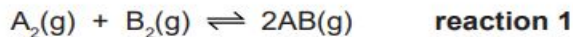


(i) Explain why the position of equilibrium does **not** change.

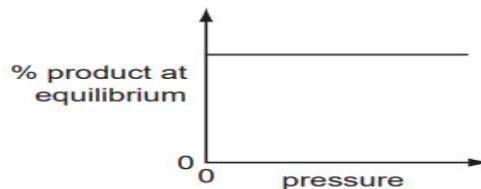
..... [1]

# 3

Reversible reactions can come to equilibrium. The following are three examples of types of gaseous equilibria.



Decide whether the percentage of products decreases, increases or stays the same when the pressure is increased, then match the graph to one of the above reactions and give a reason for your choice



effect on percentage of products .....

reaction .....

reason .....