



# PETA KONSEP CONCEPT MAP

Tindak balas cepat  
*Fast reaction*

Tindak balas perlahan  
*Slow reaction*

Pengelasan  
*Classification*

## KADAR TINDAK BALAS RATE OF REACTION

Maksud  
*Meaning*

Perubahan kuantiti bahan  
tindak balas atau hasil  
tindak balas  
*Change in the quantity of reactants  
or products*  
Masa yang diambil  
*Time taken*

### Teori perlanggaran / *Collision theory*

- Zarah bahan tindak balas mesti berlanggar antara satu sama lain.  
*Reactant particles must collide with one another.*
- Kadar tindak balas bergantung kepada frekuensi perlanggaran berkesan.  
*Rate of reaction depends on the frequency of effective collisions.*

melibatkan  
*involves*

### Faktor-faktor yang Mempengaruhi Kadar Tindak Balas *Factors Affecting Rate of Reaction*

Kepekatan  
*Concentration*

Tekanan  
*Pressure*

Saiz  
*Size*

Suhu  
*Temperature*

Mungkin  
*Catalyst*

- Kepekatan ↑  
*Concentration ↑*
- Bilangan zarah per unit  
isi padu ↑  
*Number of particles per unit  
volume ↑*

- Tekanan ↑  
*Pressure ↑*
- Bilangan zarah per unit  
isi padu ↑  
*Number of particles per unit  
volume ↑*

- Saiz ↓  
*Size ↓*
- Jumlah luas permukaan  
terdedah kepada  
perlanggaran ↑  
*Total surface area exposed to  
collision ↑*

- Suhu ↑  
*Temperature ↑*
- Tenaga kinetik  
zarah-zarah ↑  
*Kinetic energy of particles ↑*

- Lintasan alternatif  
dengan tenaga  
pengaktifan ↓  
*Alternative pathway with ↓  
activation energy*

Kadar tindak balas ↑  
*Rate of reaction ↑*