

## States of Matter

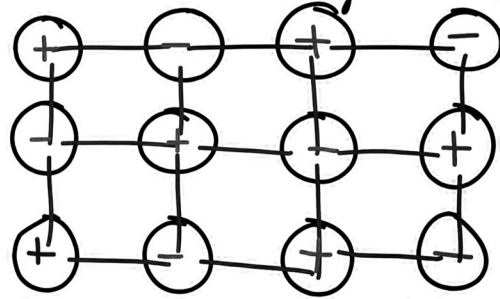
State: How particles interact with each other at a macro large level.

### Solid

Fixed Shape

Fixed Volume

Strong Interactions



Ionic Compound as a solid

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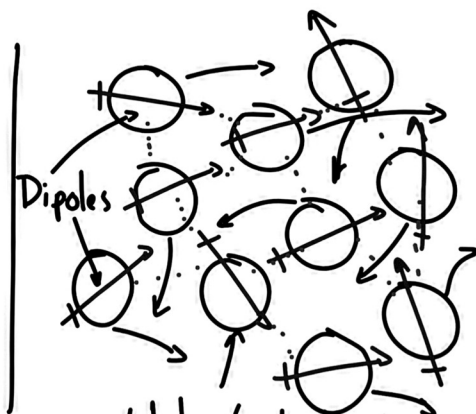
## States of Matter

### Liquid

Variable Shape

Fixed Volume

Medium Interactions



Water (polar) at room temp

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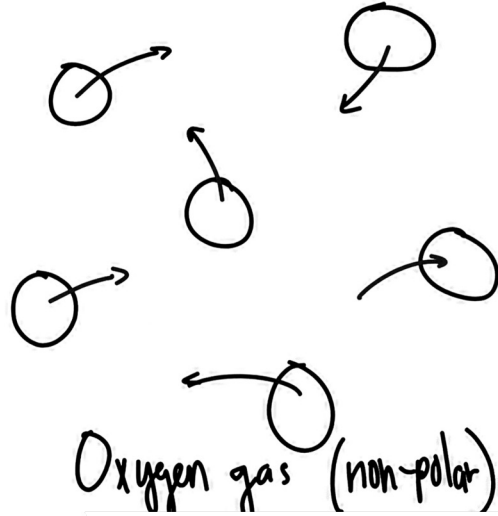
## States of Matter

Gas

Variable Shape

Variable Volume

Weak Interactions



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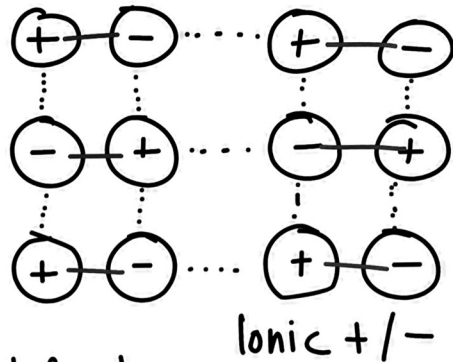
## Molecular Interactions

Ionic - Ionic (Bond)

Type +/- crystal structure

State Solid

Strength Strong



Particle Connection  
+/- charge attraction

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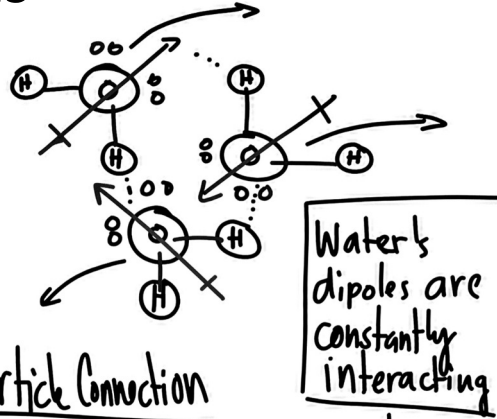
## Molecular Interactions

Polar - Polar (Bond)

Type Dipole-Dipole

State Liquid

Strength Medium



Particle Connection

Positive dipole end w/ negative  
(and - to +) dipole end

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## Molecular Interactions

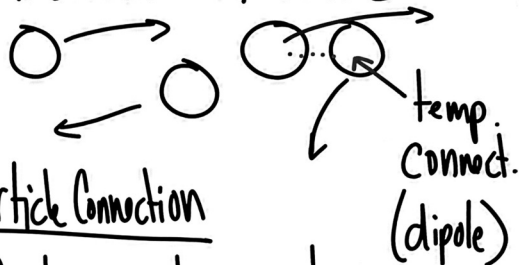
Non-Polar-Non-Polar (Bond)

Type Induced Dipole /  
Induced Dipole

State gas

Strength Weak

Induced dipole : temporary  
(short) interaction due to  
movement of val.  $e^-$



Particle Connection

Quick connection when  
particles collide

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