

ملخص الدرس الأول motion in Particles من الوحدة الثالثة منهج انسابير



تم تحميل هذا الملف من موقع المناهج الإماراتية

موقع المناهج ← المناهج الإماراتية ← الصف السادس ← علوم ← الفصل الأول ← ملفات متنوعة ← الملف

تاريخ إضافة الملف على موقع المناهج: 2025-09-25 13:57:20

ملفات اكتب للمعلم اكتب للطالب ا اختبارات الكترونية ا اختبارات ا حلول ا عروض بوربوينت ا أوراق عمل
منهج انجليزي ا ملخصات وتقارير ا مذكرات وبنوك ا الامتحان النهائي ا للمدرس

المزيد من مادة
علوم:

التواصل الاجتماعي بحسب الصف السادس



الرياضيات



اللغة الانجليزية



اللغة العربية



التربية الاسلامية



المواد على تلغرام

صفحة المناهج
الإماراتية على
فيسبوك

المزيد من الملفات بحسب الصف السادس والمادة علوم في الفصل الأول

ملخص مجاب على الوحدة الأولى

1

ملخص على الوحدة الأولى

2

ملخص الوحدة الثالثة المادة والذرات

3

عرض بوربوينت الدرس الثاني بنية الذرة من وحدة المادة والذرات الجزء الثالث

4

عرض بوربوينت الدرس الثاني بنية الذرة من وحدة المادة والذرات الجزء الثاني

5



الإمارات
THE EMIRATES

Inspire Science Program

Grade: 6 General

Subject: Science

تربية
وتعليم

5
4
عام المجتمع
YEAR OF COMMUNITY
UAE

U3: ENERGY IN THE ATMOSPHERE

M1: ENERGY AND MATTER

1 PARTICLES IN MOTION

Inspire
Science

Inspire
Science



Learning Objectives U3M1L1

- After completing the lesson, the students will be able to:
 - Understand how do particles move.
 - Explain the relation between the movement of particles and the amount of energy.
 - Draw and model the movement of particles.
 - Describe the effect of heat on particle movement & kinetic energy.
 - Explain thermal expansion and thermal contraction.
 - Relate temperature and kinetic energy.
 - Explain how temperature scales represent energy.
 - Compare the movement of the solid and liquid particles.

Movement of Particles

LO: Understand how do particles move.

- Everything around us is a matter.
- Matter is either **solid**, **liquid**, or **gas**.
- Matter is made of small particles.
- Does these particles move or no? **YES**

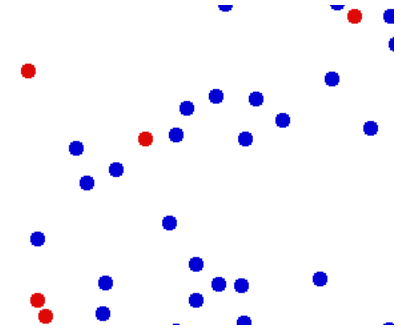


Team	Response	Number of Polls
A	YES	
B	NO	

Collisions of Particles

LO: Understand how do particles move.

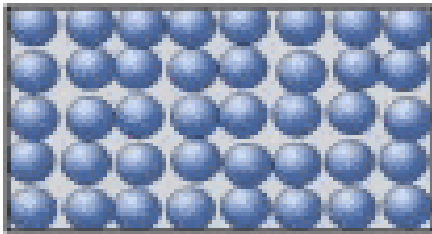
- **Remember that:** All matter is made of particles.
- Particles are in constant and random motion.



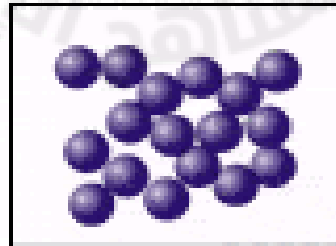
Random motion is:

The movement in all directions and at different speeds.

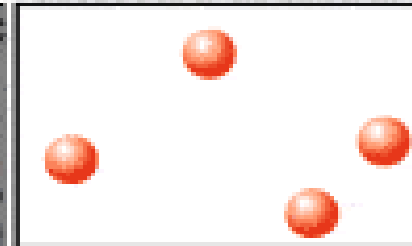
- Particles constantly collide with each other.



Solid



Liquid



Gas

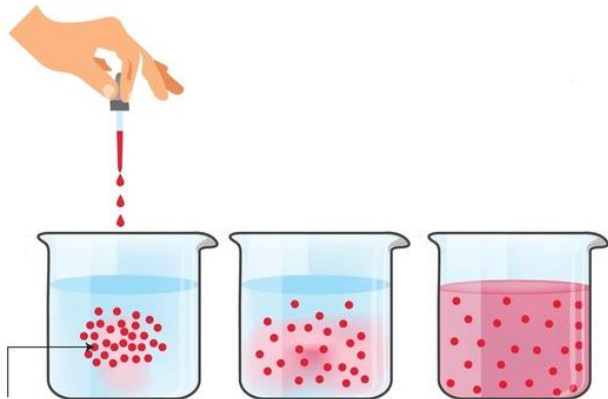
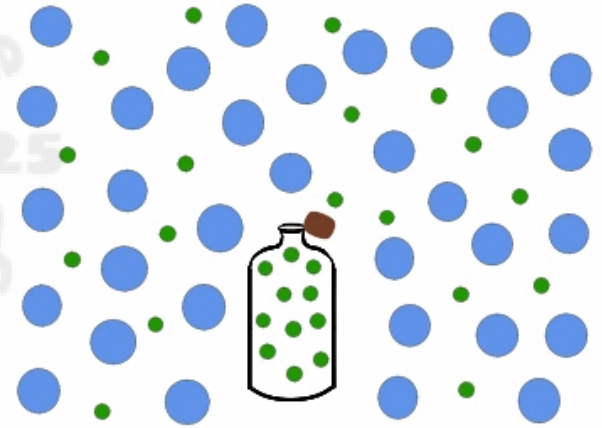
Diffusion

LO: Understand how do particles move.

Diffusion is:

The movement of particles from an area of higher concentration to an area of lower concentration.

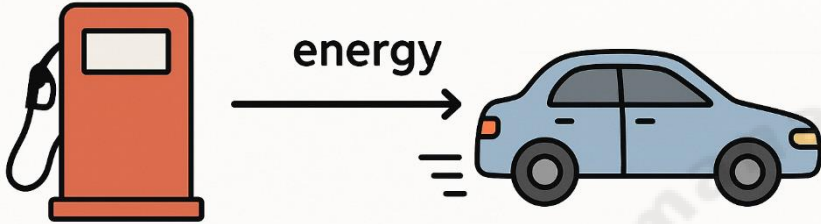
- Diffusion does not happen instantly.
- Particles diffuse until the concentration is the same throughout the container.



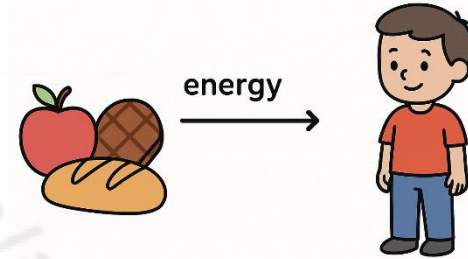
- **In the picture:** As you move from **left** to **right** the particles become more diffuse.

Movement and Energy

LO: Explain the relation between the movement of particles and the amount of energy.



The car gets energy from fuel and then move



A boy gets energy from food for his activities

Energy is:

The ability to cause change or do work.

- Like the car and the boy, particles with energy move more.

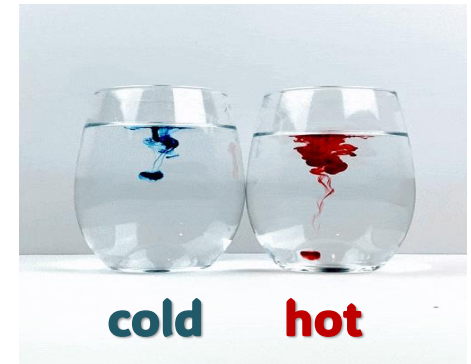


Kinetic Energy

LO: Explain the relation between the movement of particles and the amount of energy.

- Observing diffusion helps understanding movement speed.
- The faster the substance diffuses is the faster particles move.
- Does particles diffuse faster in cold or hot water? **Hot water**

Team	Response	Number of Polls
A	Cold water	
B	Hot water	



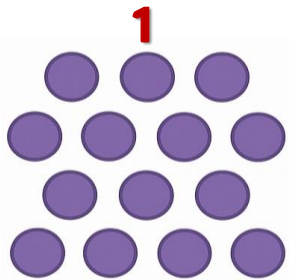
Kinetic Energy is:

The energy related to the movement of the particles.

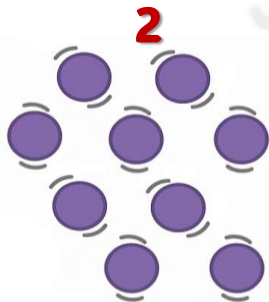
Modeling Particles Movement

LO: Draw and model the movement of particles based on their energy.

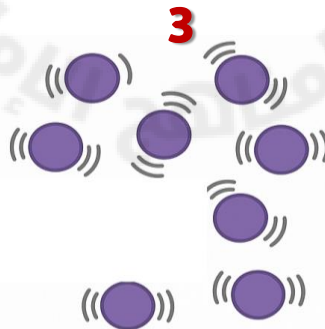
- Kinetic energy depends on **speed of the particles**.
- The higher the speed is the higher the kinetic energy.
- Particles are represented by different **motion lines**.
- More motion lines means faster particles.



**Non moving
particles**



**Slow
particles**



**Fast
particles**

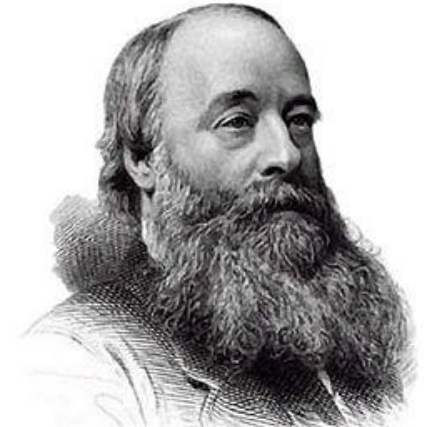
- **In the drawing:** order the particles based on their kinetic energy from the lowest to the highest.

Kinetic Energy of Liquid

LO: Describe the effect of heat on particle movement and kinetic energy.

Thermodynamics is: the study of heat.

- **James Prescott Joule** proposed that:
 - The movement of particles produces heat
 - As particle velocity increases their energy rises
- There is no way to see how fast particles are moving.



- What happen when you heat a liquid?
Particles move faster and form bubbles.
- We can observe how hot or how cold is the liquid to measure its kinetic energy .

Energy and Volume

LO: Explain thermal expansion and thermal contraction.

Thermal expansion is:

The increase of the volume of a material when particle motion increases.

- Particles move faster and collide more.
- Particles push each other further.
- Kinetic energy increases.



Thermal contraction is:

What happens when particle motion decreases and causes the particles to occupy less volume.

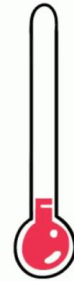
- Particles lose their Kinetic energy.
- Particles move slower and collide less.
- The substance take up less space.



Energy and Temperature

LO: Relate temperature and kinetic energy.

- **Remember that:** the higher the movement of the particle is the higher the kinetic energy.
- What is the quantity read in the thermometer?
Temperature



Temperature is:

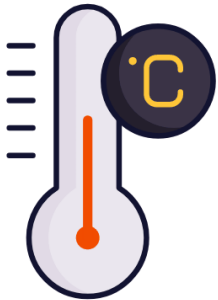
The measure of the average kinetic energy of the particles in a material.



- In cold days what happen when you rub your hands together? **They become hot.**
- Why? **When you rub your hands you are increasing the average kinetic energy of the particles which is the temperature.**

Temperature Scales (Celsius)

LO: Explain how temperature scales represent energy.



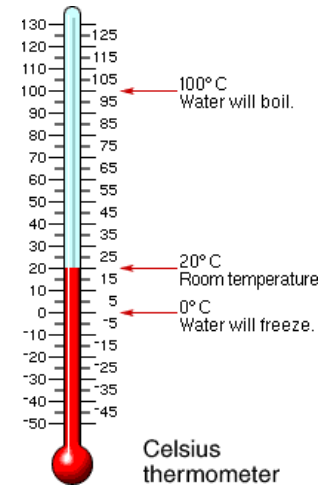
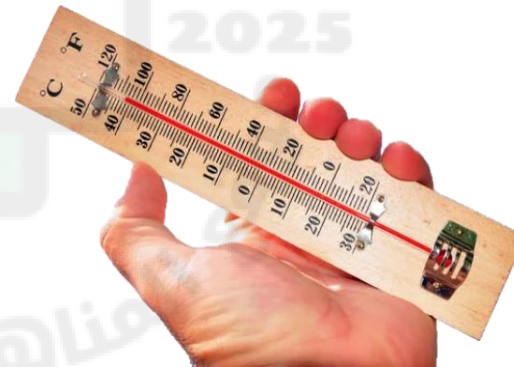
- Temperature scales allow **comparison using fixed points.**

- The space is divided evenly between the points.

- Celsius scale "Widely used":

- The points are:

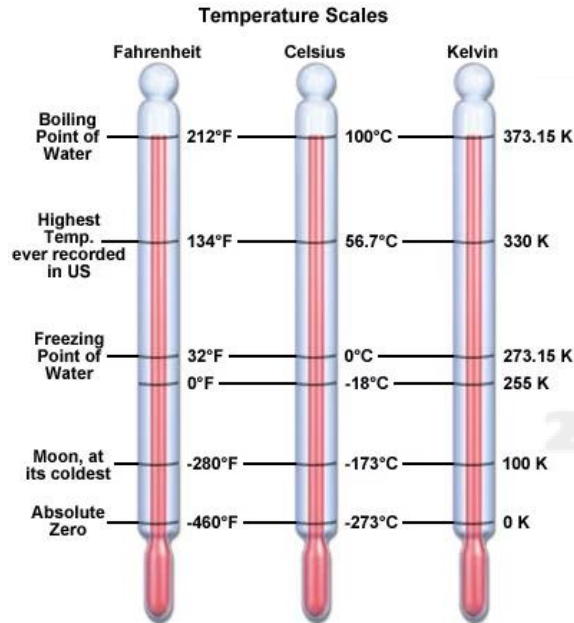
- 0°C (freezing of water)
- 100°C (boiling of water)



- The scale is divided into 1 centimeter steps.
- This scale is often called centigrade.

Other Temperature Scales

LO: Explain how temperature scales represent energy.



- Kelvin scale "the standard scale":
 - It Predicts that particle motion stops at 0 K "the absolute zero".
 - At 0 K, particles have no kinetic energy (never reached). As no material was cooled successfully to 0 K.
- Other scale is the Fahrenheit scale.
- 0 degree Celsius equals 32 degrees Fahrenheit.

Movement in Gasses and Solids

LO: Compare the movement of the solid and liquid particles.

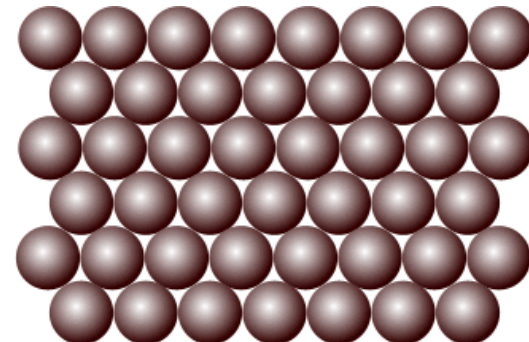
Movement in Gasses

- Particles move at **high speed**.
- Particles has **high kinetic energy**.
- Gasses can expand & contract.
- **Evidence:** You can smell scents from distance.



Movement in Solids

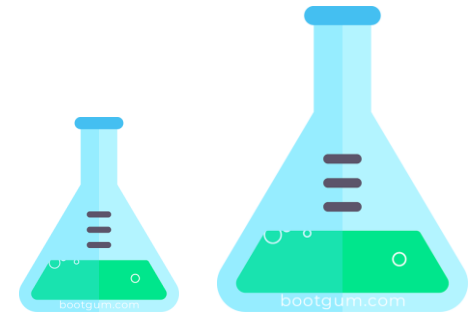
- Particles move **slowly**.
- Particles don't move freely but vibrate back and forth.
- They have **low kinetic energy**.
- Expansion and contraction is not noticeable.



Energy and Mass

LO: Understand the relationship between mass and energy of the particles.

- At the **same temperature**, substances have the **same average kinetic energy**.
- A substance with more particles **has more total energy**.
 - Example: 100 g of water has 5 more particles than 20 g.
- With equal temperature:
 - **Greater mass = more total energy**.
- **The more particles present is the higher the total energy in the substance.**





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