

22/04/2022

Chapter :- 1

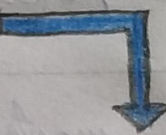
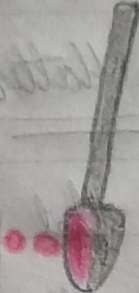
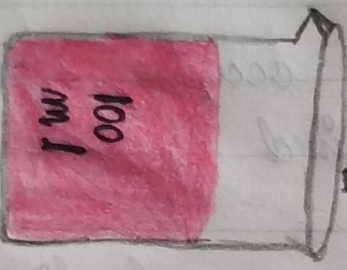
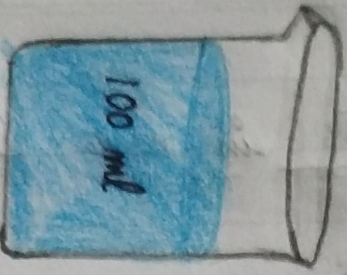
Matter in our Surroundings

Concept of Matter

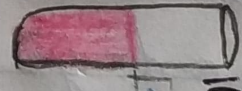
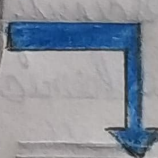
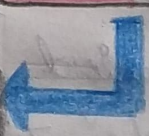
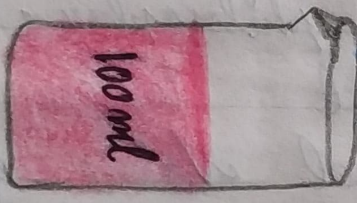
- Anything that occupies space, has mass and can be perceived by our senses is known as Matter.
- Matter is made up of five basic elements - Air, Water, Earth, Fire and Space according to the ancient philosopher.
- Modern scientist believes in the Physical and the chemical nature of Matter.
- Physical ~~nature~~ nature of Matter - Solid, Liquid and Gas (Appearance).
- Chemical nature of matter depends upon the composition of matter.

Characteristics of the Particles of Matter

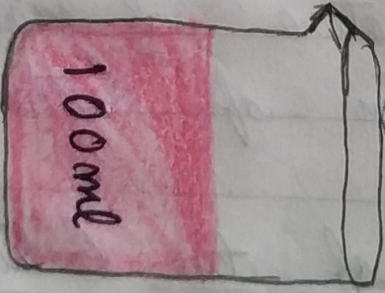
- Particles of matter have space between them.
- Particles of matter ~~are~~ are very small in size.
- Particles of matter are continuously moving.
- Particles of matter attract each other.



10 ml



10 ml



Explanation

First we took a beaker containing 100 ml of water, then we add 3-4 crystals of ~~pot~~ Potassium Permanganate. The water turns pink in colour and that solution is concentrated. Then we take another small ~~test~~ test tube and take 10 ml of solution from previous beaker and add to another beaker containing 100 ml of water. Then we do the same thing for 3 or 4 times.

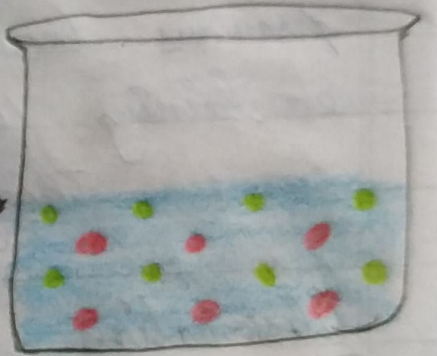
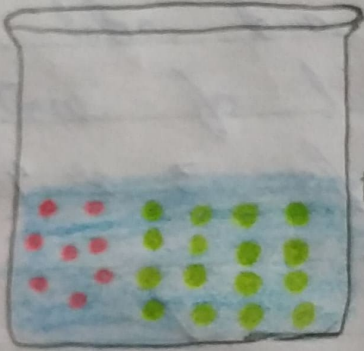
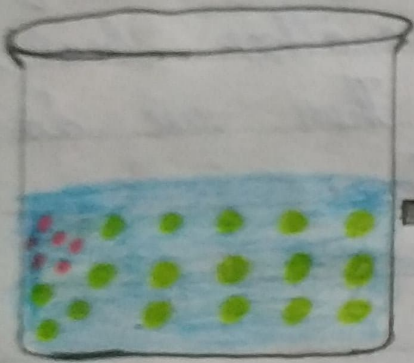
Observation

We observe that when we do ~~that~~ that for three or four times then the solution of ~~potassium~~ Potassium Permanganate gets diluted and the colour also gets lighter.

Conclusion

So, we ~~could~~ conclude that the "particles of matter are very small in size."

1/10/2020



Conclusion

Explanation

First we took a beaker containing some amount of water. Then we took a little amount of colour in a dropper, then we add 4-5 drops of colour in water and kept undisturbed for 1-2 minutes.

Observation

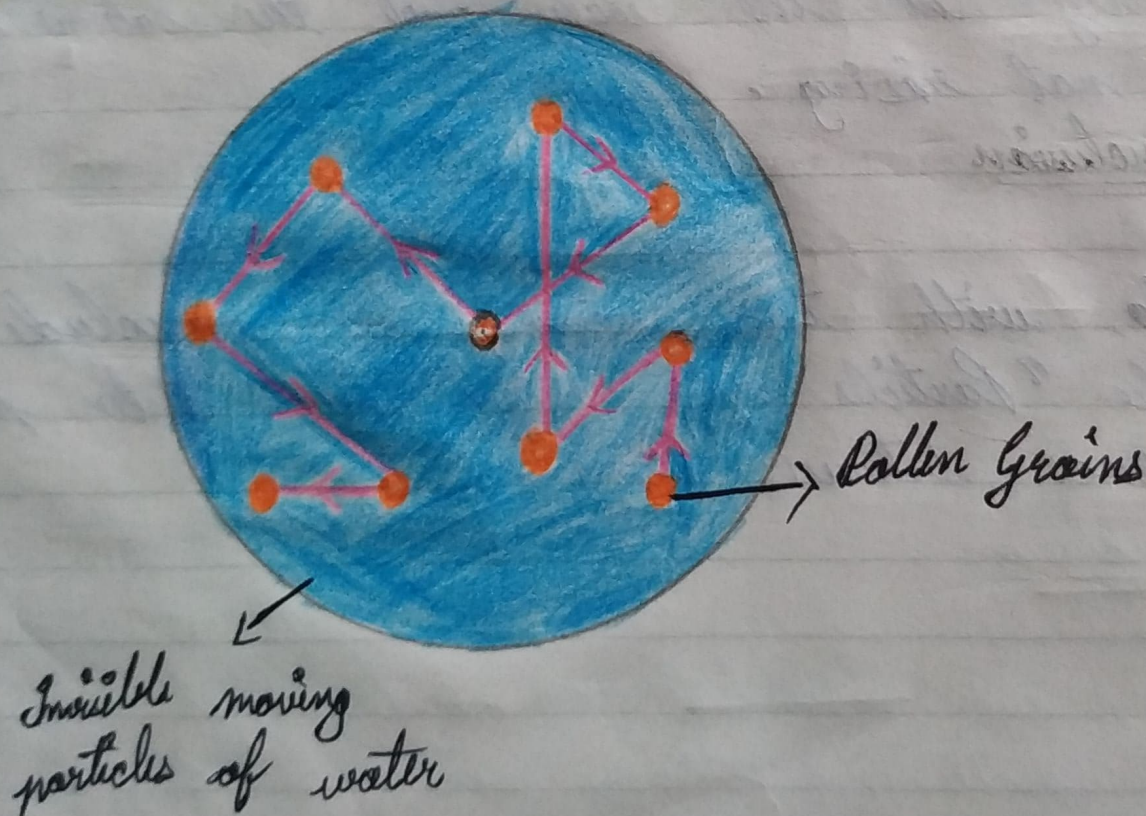
After ~~we~~ 1-2 minutes, we observe that the colour is slowly getting ~~distributed~~ distributed evenly in the water and the volume of water is not rising.

Conclusion

So, with this activity we conclude that the "Particles of matter have inter particle space between them."

Brownian Motion

- The haphazard, random motion of the suspended particles on the surface of a liquid or in air is called Brownian Motion.
- This was first noticed by Mr. Robert Brown in 1831.
- It gives the evidence of the existence and movement of the particles in liquids.
- For example:- movement of pollen grains in water.



HW

1) Explain by an ~~example~~ activity that Particles of matter have space between them.

ans) Take a glass of water, add sugar and stir. You will observe that there is no rise in the water level. This shows that particles of matter ~~to~~ have space between them. When we add sugar to the water, the sugar particles adjust themselves in the space between the water particles. Hence, we can say that particles of matter have space between them.

2) Mention the five basic elements of Matter.

ans) The five basic elements of Matter are:-

i- Earth

ii- Water

iii- Air

iv- Fire

v- Space

3) What do you understand by the term matter support your answer with Examples.

ans) Matter means anything that has mass and occupy space. For example - We can say

say that a table is a matter. It
because it has mass and occupy
some space. ~~between~~ Matter is divided
into 3 states that is solid, liquid
and gas. Each state has its own
properties.

Solid - Anything which lies in solid state
will have a definite shape and volume.
Example :- Chair, Table, Book, T.V etc

Liquid - Anything which lies in liquid
state will have definite volume but not
a definite shape.

Example :- water, juice, Tea etc

Gaseous :- Anything which lies in gaseous
state will not have defined volume
and shape

Example :- O_2 and CO_2

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Particles of matter attract each other

Activity:- Take an iron nail, a piece of chalk and a rubber band. Try breaking them by hammering, cutting or stretching. It is more easier to break the ~~difficult~~ chalk than breaking an iron nail. This is because the particles in the iron nail are held together with greater force than in the rubber band or chalk.

States of Matter

⇒ Basically when we look around we find matter is broadly divided into three states

i- Solid state

ii- Liquid State

iii- Gaseous State

→ Apart from these there are two other states which will be discussed. They are

iv- Plasma

v- BEC (Bose Einstein Condensate)

Plasma

- ⇒ It is the fifth state of matter.
- ⇒ This state consist of super energetic and super excited particles.
- ⇒ The Fluorescent tubes and Neon sign bulbs contain Plasma.
- ⇒ The Plasma in stars is formed Due to ~~a~~ high Temperature.

BEC (Bose - Einstein Condensate)

- ⇒ It is the sixth state of matter.
- ⇒ It was predicted by Albert Einstein based on the calculation done by Satyandra Nath Bose.
- ⇒ It is ~~very~~ a Gas having very high Density.
- ⇒ Its density is $1/1000^{\text{th}}$ of the Normal Air.

Solid State

- ⇒ The particles of matter are very tightly packed.
- ⇒ The particles of matter have strong intermolecular Force of attraction in between them.