



QADIMS LUMIÈRE

Montessori to Matric O & A Level

School & College

Class 4th Subject: Science ; Summer Vacations Homework

Three Main Branches of Science: The 3 main branches of Natural Sciences are,

Physics: the Study of Universe

Chemistry: the Study of Matter

Biology: the Study of Life and Living Organisms.

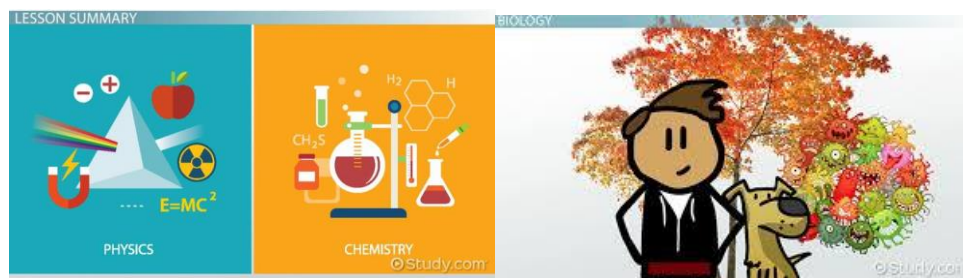


Image # 1 Physics

Chemistry

and Biology

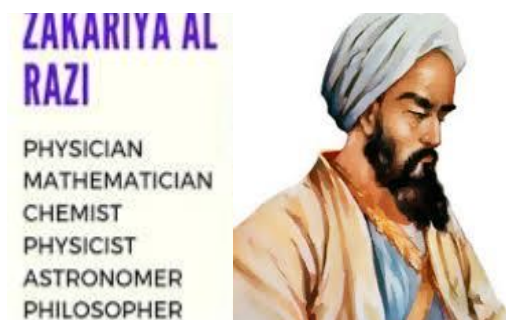
Contribution of Muslim Scientists: Muslim scientists and inventors, including Arabs, Persians and Turks, made innumerable discoveries and wrote countless books about medicine, surgery, physics, chemistry, philosophy, astrology, geometry and various other fields.

Famous Muslim Scientists: The achievements of a few Muslim scientists are described as below,

Jabir Ibn Haiyan (722 – 804). Also known as Geber. The father of Arab chemistry known for his highly influential works on alchemy and metallurgy.



Abu Bakr Al-Razi (865 – 925). Also known as Rhazes was a Persian alchemist and philosopher. He was one of the greatest physicians in the history.



Following experiments are designed basing on the work of above scientists and their immense contributions to the field of science.

Unit # 4 Matter and its Characteristics

Experiment # 1

- You will need different liquids such as milk or fruit juice, plastic cups, freezer, and different liquids.
- Place the plastic cups in the freezer overnight.
 - a. What do you think they will look like the next day?
 - b. What shape will they be? Do all liquids freeze free?
 - c. Make a table of your predictions of results like this one:

	Liquid	What does it look like?	My prediction	Did it freeze?	Temperature	Time
1	Water	Clear and colorless liquid	Solid block of ice	Yes	0°C	30 min
2	milk					
3	Fruit juice					
4	Glycerin					

- d. Predict what will happen if you leave the solid out of the freezer?

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- e. Record your observations.

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Experiment # 2

You will need plastic glove, water, peg, and freezer.



- Fill a plastic glove with water. Tie end firmly with a peg. Put it in a freezer for several hours. When the water is frozen, carefully peel off the plastic glove.
- What do you notice about the shape of the water now that is frozen?

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- Which parts of the hand will melt first? Why? Observe the ice to find out if your prediction is correct.

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- How is this different from the water that went into the glove? Why do you think this is? Hint: Think of the particles in both states of matter).

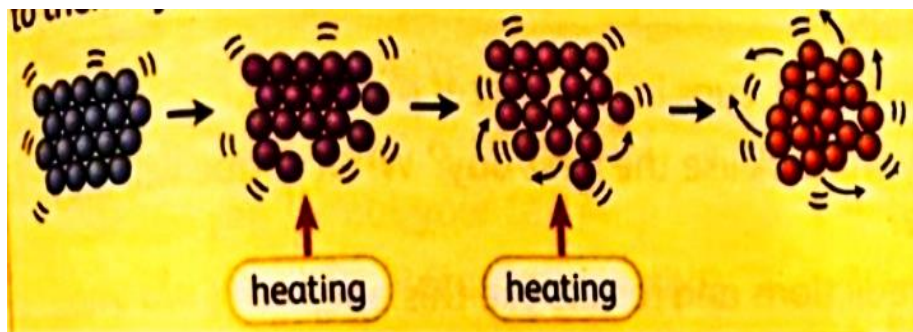
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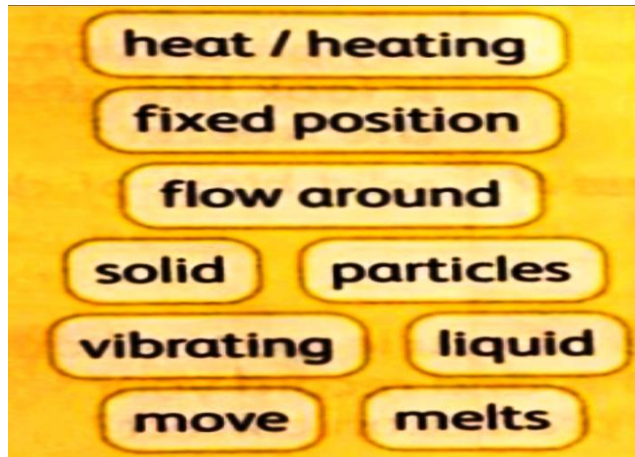
- Is the ice transparent, translucent or opaque? What does this tell you about the ice and water?

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Experiment # 3

This flowchart models what happens to the particles in a solid as energy is transferred (given) to them by heating.





a. write a sentence to describe what is happening in each word in the above image:

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b. Have any particles been lost or taken away when the solid melts?

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c. What happens to the mass of the solid as it melts?

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