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Ambawadi, Bhavnagar
Phone : (0278) 2209220
email
sciencecity.bhavnagar@gmail.com
Facebook : is.gd/fbscty
www.sciencecity.co.in

: **Editor :**

Bipin Shah

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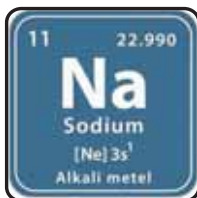
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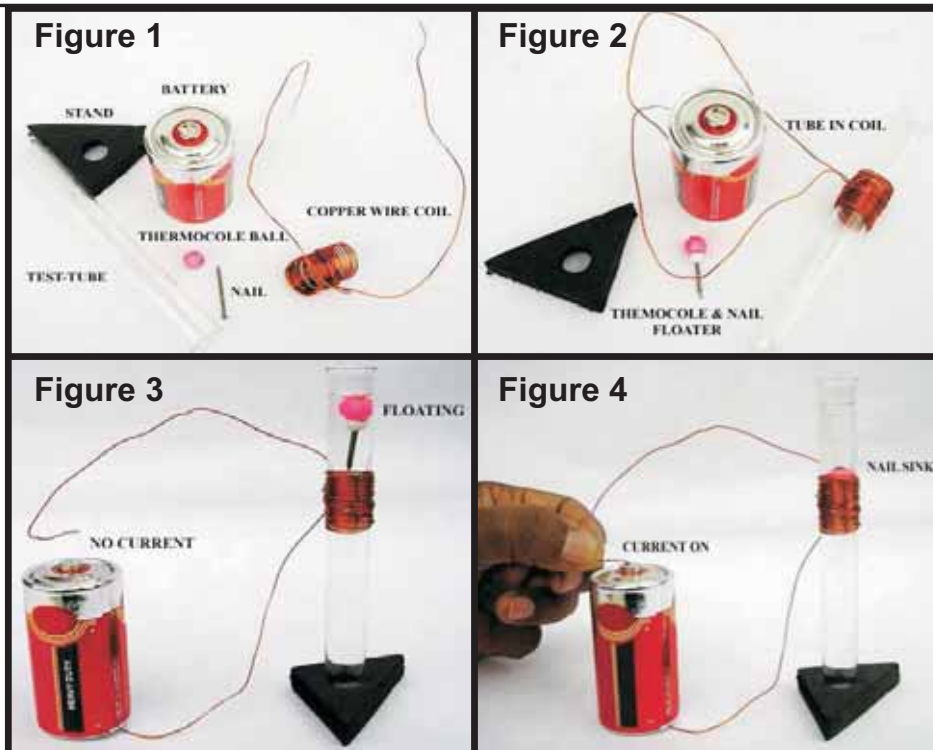
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Electric Magnet in Water



Materials Require : A test tube, Thermocol ball, 1.5 volts battery, Copper wire, Pin (Nail). A triangular piece of sponge. You can also take a piece of Thermocol instead of a sponge.

Figure-1 - Take a triangular piece of sponge and cut the inner part into a circle. which will work as a stand.

Figure-2 - Wrap copper wire 30-40 times at the center of the test tube.

Now, hold test tube on stand and fill up water into it. Pass the pin through a hole in a thermocol ball.

Figure-3 - Place the pin in a test tube filled with water as shown in the diagram so that it floats on the water.

Figure-4 - Pass power through a copper wire connected to one end of the copper wire to the positive pole and the other end to the negative pole. As the current passes through the copper wire, the pin will be attracted downwards. As soon as the current stops flowing, it will start floating upwards immediately.

Think: 1. Why does the pin come down as soon as an electric current passes through the copper wire? 2. What is the result, if the pin is not kept in a thermocol ball? 3. Can we take another liquid instead of water in the test tube?



GoodFood

Plum Raspberry



The sweet-sour and immune-rich fruit seen during this monsoon season is the plum which we know as raspberry. Here we will understand the fruit - plum, in detail.

Plum is a plant of Rosaceae family. Whose scientific name is *Prunus domestica*. **L / *Prunus salicina***. Plum is grown in the temperate region of the world, in the rocky mountainous region. In India, it is cultivated in Himachal Pradesh, Jammu and Kashmir, Uttarakhand and Nilgiris in South India. Plum trees are usually 8 to 10 meters high, while some plum species have low height and sloping branches. The speciality of a plum flower is that 1 to 5 flowers bloom from a single bud, but

usually 2 or 3 flowers bloom from a single bud. Flowers in clusters looks like hollow cups and have a regular floral arrangement. After fruiting in the flowers, its drup is transformed into fruit. The fruit is fleshy, juicy and sweet-sour in taste with almond-like seeds present in a hard shell. There is a lot of variation in the size, aroma, colour and cover of the fruit. The fruits are usually yellowish white, green, red, purple and violet. Plum tree usually wear fruit after 140 to 170 days but in some varieties fruits are obtained after 75 days.

Mountain alluvial soils with a pH of 6.62 and which is rich in C, N, P, K nutrients are more favorable for the cultivation of plum. It needs 200 to 300 mm of rain, 25°C to 30°C temperature. Plum fruit size, shape, colour, aroma, skin and quality are characterized by temperature and tropical climates. One plum contains carbohydrates - 8 gm, fibre - 1 gm, sugar - 7 gm, vitamins A - 5%, C - 10%, K - 5%, potassium - 3%, copper - 2%, manganese - 2%. It has low amount of Vitamin B, Phosphorus and



Magnesium. Dried plums contain more vitamins K, B and minerals than juicy plums. The fibre in the plum works well in



constipation. Its fibre is not water soluble so it cleans digestive track easily.

After drying the plum it is known as prune. In which it contains high amount of sugar as well as aroma. It is highly nutritious and rich in many vitamins, minerals, fibre and antioxidants that protect against many deadly diseases. Dried plums are good for osteoporosis (bone disease) and constipation.

- Sorbitol and Psyllium in plum juice help reduce constipation. According to a study, if you eat 50 grams of dried plums every day, it gives relief in constipation, but over eating causes diarrhoea.
- Plum is rich in antioxidant ingredients that repair swollen parts and damage cells in the body. The polyphenols in it contains antioxidants that help maintain bone health, reduce the risk of heart disease, and help with diabetes. Anthocyanine type of polyphenol component is found in plum which has protective function against heart

disease as well as cancer. It is helpful in joint pain as well as lung diseases. Plum has double amount of polyphenol antioxidants than other fruits.

- Plum reduces the amount of blood sugar level. Adiponectin enzyme increases blood sugar level. Fibre present in plum reduces adiponectin secretion which controls blood sugar level.
- The use of plum further lowers blood pressure and cholesterol levels so that the incidence of heart disease decreases.
- Plum contains ingredients such as sorbitol, edible fibre, isotone which is useful in increasing blood circulation in the body and boosting the immune system. So plums are known as **super healthy food**.
- Plum is rich in vitamins and minerals and contains vitamins A, B1, C, K and no harmful fats containing low calorie. Useful for eye health and prevention of cataracts. Potassium in plums acts as an electrolyte to increase the efficiency of body cells, tissues and muscles.
- Dried plums are important in Ayurvedic treatment. Which is very beneficial in jaundice and heat stroke.
- Plum add taste to food as well as useful in making jam.

Plum is grown all over the world. Different varieties are found depending on the climate and the type of soil. Common European plums have been found in the Caspian Sea for over 2,000 years. Japanese plum dominated China thousands of years ago, then it grew

Continue on page No.13

11	22.990
Na	
Sodium	
[Ne] 3s ¹	
Alkali metal	



Alchemist

Sodium and its compounds

Sodium is an alkali IA group metal. Discovered by Humphry Davy in 1807 by the electrolysis of dried NaOH.

Sodium is a soft metal that can be readily cut with a knife and is a good



conductor of electricity. It has a bright, silvery luster. On exposure to air it rapidly tarnishes,

forming a white coating of sodium hydroxide and sodium carbonate. When sodium or its compounds are kept into a flame, they burn with yellow color.

Sodium compounds are commercially used in a very large scale in glass, paper, textiles and soap producing industries. These commercial important compounds include table salt (NaCl), caustic soda (NaOH), soda ash (Na₂CO₃), baking soda (NaHCO₃), sodium nitrate (NaNO₃), di- and tri-sodium phosphates, sodium thiosulfate (Na₂S₂O₃·5H₂O), and borax (Na₂B₄O₇·10H₂O).

Sodium chloride

Common salt is a white crystalline solid. It is an ionic compound of sodium and chlorine. The main



source of common salt (sodium chloride) is the sea water. It is also found as a rock salt. Here we talk about some sodium compounds. Common salt (or sodium chloride) is obtained on commercial scale from sea water. Sodium chloride is a deliquescent, i.e., it absorbs moisture from the atmosphere. This is due to the presence of small quantity of magnesium chloride (MgCl₂) in it. Molten sodium chloride is a very good ionic conductor.

Uses of sodium chloride:

- ⇒ Sodium chloride is used for manufacture of chemical compounds, such as caustic soda, soda ash (washing soda), baking soda, hydrochloric acid, chlorine gas, etc.
- ⇒ It forms an essential ingredient in our food and used as a preservative for vegetables, meat and fish.

Sodium hydroxide

Sodium hydroxide is commonly called caustic soda. Large quantity of sodium hydroxide is now-a-days prepared by electrolytic process.

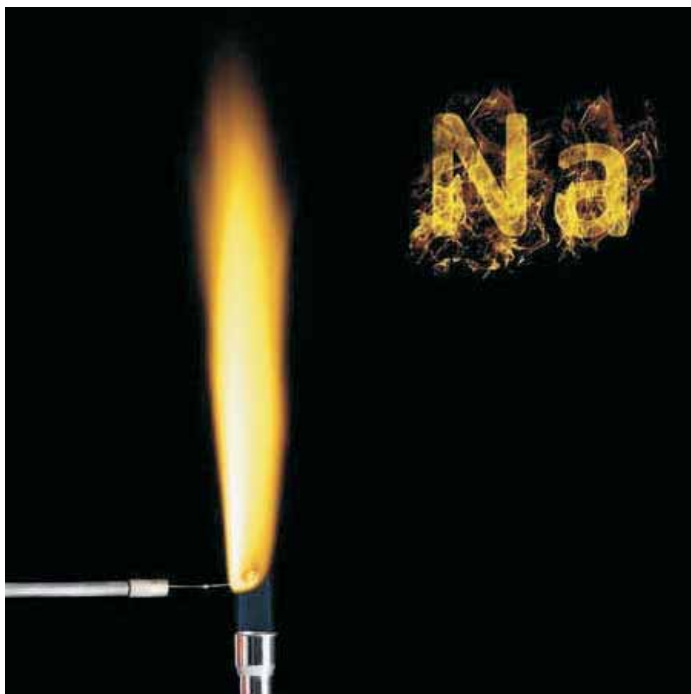
Sodium hydroxide is prepared by Causticization process and Castner Kellner Process.

Causticization process depends on reaction between suspension of lime (Calcium hydroxide) and Sodium

carbonate. This reaction is reversible.



Castner-kellner method: NaOH (caustic soda) is prepared by the electrolysis of aqueous solution of NaCl. It is a highly effective method. NaOH obtained in this method is highly pure.



Uses of Sodium Hydroxide

- ⇒ In the manufacture of soap, paper, viscose rayon (artificial silk), organic dye stuffs, sodium metal and many other chemicals.
- ⇒ Used in the refining of petroleum and vegetable oils. It is also used in the purification of bauxite.
- ⇒ As a cleansing agent
- ⇒ It is also used for mercerizing cotton,

as a reagent in the laboratory and in the preparation of soda lime.

Sodium carbonate

Sodium carbonate exists as anhydrous salt (Na_2CO_3) and also as hydrated salt. The deca hydrate ($\text{Na}_2\text{CO}_3 \cdot 10\text{H}_2\text{O}$) is known as washing soda. The anhydrous salt is called soda ash.

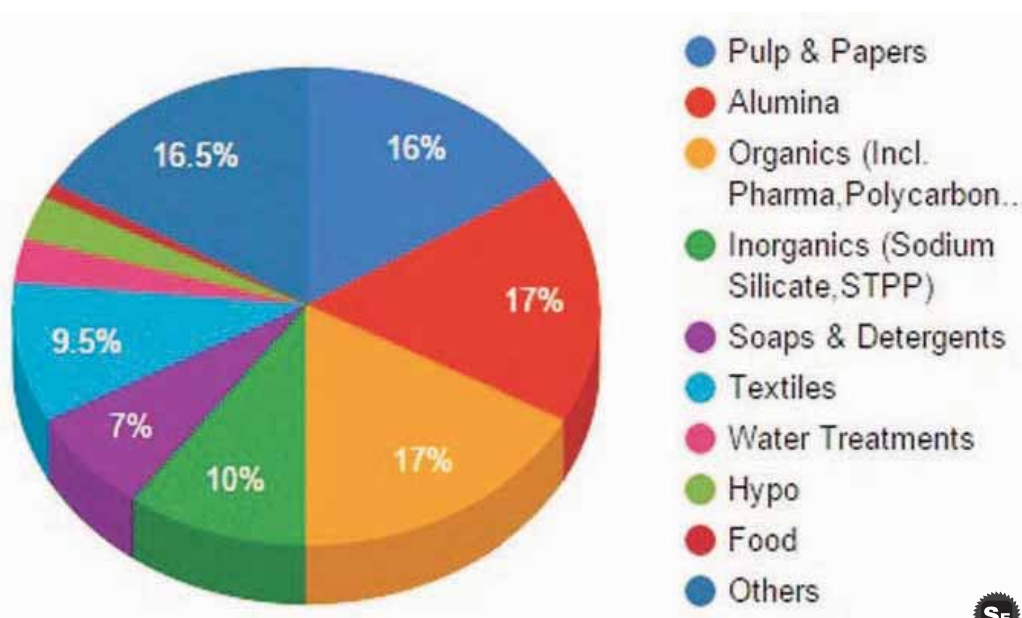
Preparation method

Sodium carbonate at industrial level is manufactured by the Solvay or Ammonia-soda process.

The raw materials for this process are common salt, ammonia and limestone

Uses of Sodium Carbonate

- ⇒ Used for the manufacture of glass.
- ⇒ Used for washing purposes in laundries.
- ⇒ Used for the manufacture of other sodium compounds like sodium silicate, sodium hydroxide, borax etc.
- ⇒ Used as a household cleansing agent.
- ⇒ Used in paper and soap/detergent industries.
- ⇒ Used for the softening of water.





For
notice
board

for students of standard 4th to college

Objectives : ISO-ICO exams develop children's attitude towards science - maths, Computer and logic and cultivate creativity amongst them and help them in comprehensive development.

To get ready for competitive exams like UPSC, GPSC, RBI, SBI, IPS, SSC, LIC, INDIAN RAILWAY etc., gain confidence and achieve success.

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Time : 90 minutes - 10:00 am to 11.30 am

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Section : 7 section of std 5th to 12th and college

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Nano news

Touch TV Live Board



Touch TV

In Modern Technology, we have Touch Screen facility in Mobile phones. But now we have a television in which this facility is available. So, with this unique feature we can also take advantage of this facility in big screen. Touch screen Television contains some features of Android, due to which we can swipe up the television screen just like Android. We can change the channels by swiping up the screen.

Live Board

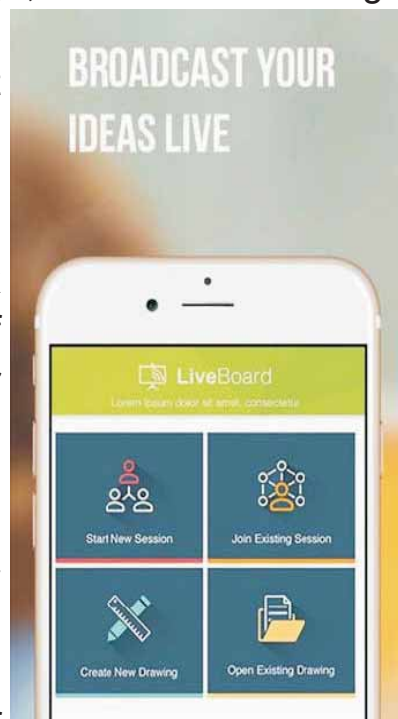
Considering the recent epidemic in the world, Government has declared to reopen schools and colleges by Mid-August, while Private and Government Organizations are worried about their meetings and other activities. Also almost

all the classes are going to start. There are many applications which provides classroom environment for students. But the app in which students can learn with the help of white/black board is provided by Live Board App. In this Live Board App, you have been provided facilities like to draw, to share your thoughts and to chat with other classmates and teachers. Live Board App behaves like your regular blackboard in which you do your class work.

Also with the help of this App, you can share your design, text and other things

to your Social Media account or E-mails it to your colleagues. Also you can edit your work with the help of your User through this App. currently, this whiteboard is used by many professional people. The main feature of

this app is that the app realizes students that they actually gets teaching in the classroom.

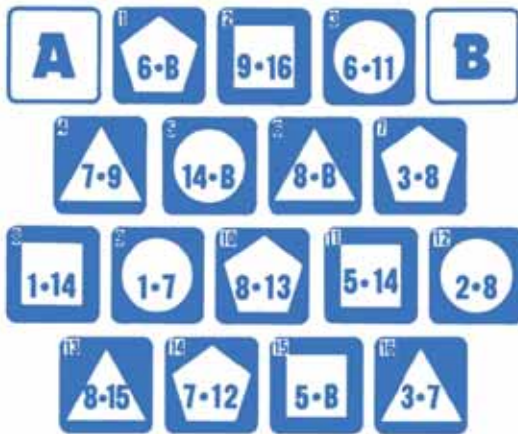




IQ Boosters

Shape Ahoy

1



SHAPE AHOY

Each of the destination squares in this puzzle is numbered from A to B (upper left-hand corners). In this 16 block squares, 4 shapes circle, square, triangle and pentagon are kept four times unpatterned. Inside same shapes two digits or one digit or B is written. You have to cross compulsorily through each shape. You can start from any shape and finish at any. Suppose, you start from A to block 7 in which 3.8 is written, in which 8 is the last digit. So you have to go to 8th block → in which 14 is the last digit. So now you have to go to 14th block . Now this pentagon has come second time so, this route is wrong. You have to find new route. If you come to 1st block in which 6-B is written that means you have reached your destination.

2



IPSISSIMA PARADOX

In this fig. 10 vertical and 10 horizontal lines are there. In each square one alphabet is written. You have to find two lines in which all 10 alphabet are same, but even if their places are not same. There will be two same horizontal lines or two same vertical lines or one horizontal or one vertical line. Can you find them ? Ok..... Go ahead....

Answer are somewhere in this issue