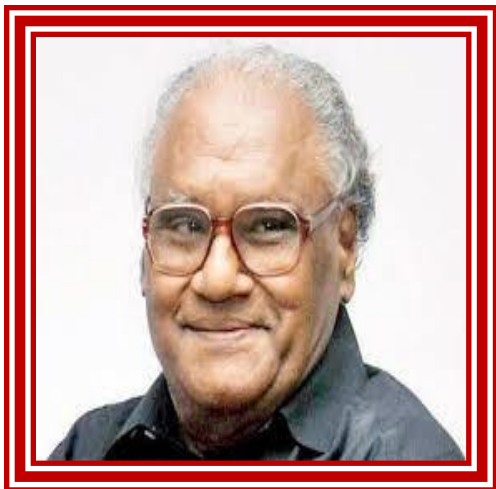


IDENTIFY THE SCIENTIST



Born in Bangalore on 30 June 1934, is an Indian chemist who has worked mainly in solid-state and structural chemistry.

one of the earliest to synthesize two-dimensional oxide materials such as La_2CuO_4 . His work has led to a systematic study of compositionally controlled metal-insulator transitions.

Currently serves as the Head of the Scientific Advisory Council to the Prime Minister of India. Received Bharat Ratna, the highest civilian award in India, making him the third scientist after C.V. Raman and A. P. J. Abdul Kalam to receive the award.

He is technophobic and he never checks his email by himself. He also said that he uses the mobile phone only to talk to his wife



RIDDLE:

A very famous chemist was found murdered in his kitchen today. The police have narrowed it down to six suspects. They know it was a two man job. Their names: Felice, Maxwell, Archibald, Nicolas, Jordan, and Xavier. A note was also found with the body: '26-3-58/28-27-57-16'. Who are the killers?

Names and symbols of four newly discovered elements announced

The official names for elements 113, 115, 117 and 118 are nihonium, moscovium, tennessine and oganesson respectively, the International Union of Pure and Applied Chemistry (IUPAC) has announced. The news comes after a five month consultation process where the public were called to express their opinions on the four proposed names and their corresponding symbols. The symbols for the new elements will be Nh for nihonium, Mc for moscovium, Ts for tennessine and Og for oganesson.

HOW TO REJUVENATE STALE BREAD AND CRUNCHLESS CRISPS

It can be irritating when bread goes stale and chips lose their crunch if you leave them out too long. But instead of throwing them away, you can revive them to their former freshness in a matter of minutes.

The starch in bread, for instance, is made up of two molecules: amylose and amylopectin. After baking bread, the tessellating structures of amylopectin traps moisture. But that structure breaks down slowly over time, releasing the moisture and hardening the bread.

When chips are fried, on the other hand, they lose all their moisture, making them likely to re-absorb moisture from the air.

So how do we fix it?

It's as easy as throwing your sad, soft chips in the microwave for 30 seconds to expel the moisture and reheating stale bread in the oven at 60 °C to suck it up again.

INTERESTING STORIES BEHIND SOME GREAT INVENTIONS

It takes a lot of hard work, brainstorming and application to come up with inventions or discoveries. Scientists, researchers go through tough times before coming up with innovative ideas. Let us know some interesting stories behind them.

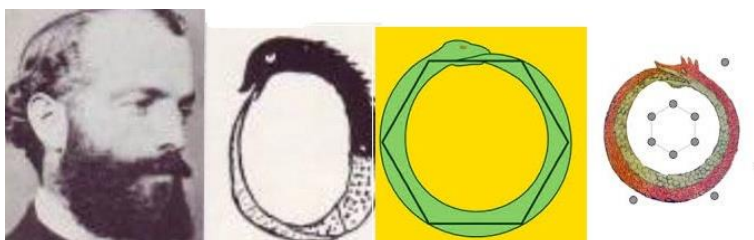
VULCANIZED RUBBER

Ever heard of Goodyear tires, they are names after the developer of vulcanized rubber, Charles Good year.



Those were the days when rubber companies were getting back their products in melted form due to torrid weather. Good Year resolved to find a solution for this. He tried various combinations like magnesia and quicklime to nitric acid to make rubber hardened weather resistant. But nothing worked, all the samples melted like ice. One fine day the magic happened. He accidentally dropped a small amount of Sulphur to a cauldron of rubber and to his surprise rubber actually hardened.

THE RING STRUCTURE OF BENZENE



The vision of the carbons coming together to form a snake eating its own tail is the pinnacle of **Kekule's benzene dream**, and therefore required dramatic creation. ... When **Kekulé** saw this snake, he made the connection to the chemical **structure of benzene**.

Aryabhata was born in 476 BC in Tarenaga, a town in Bihar, India. It is however definite that he



travelled to Kusumapara (modern day Patna) for studies and even resided there for some time. It is mentioned in a few places that Aryabhata was the head of the educational institute in Kusumapara. The University of Nalanda had an observatory in its premises so it is hypothesized that Aryabhata was the principal of the university as well. On the other hand some other commentaries mention that he belonged to Kerala.

His major work, **Aryabhatiya**, a compendium of mathematics and astronomy, was extensively referred to in the Indian mathematical literature and has

survived to modern times

FEW OF HIS CONTRIBUTIONS IN MATHEMATICS :

1. Place value system and zero

The place-value system, first seen in the 3rd-century, was clearly in place in his work. While he did not use a symbol for zero, the French mathematician Georges Ifrah argues that knowledge of zero was implicit in Aryabhata's place-value system as a place holder for the powers of ten.

2. Approximation of π

Aryabhata worked on the approximation for pi (π), and may have come to the conclusion that π is irrational. He found the value of pi (π) = 3.1416, which is accurate to five significant figures.

3. Trigonometry

Aryabhata discussed the concept of sine in his work by the name of ardhajya, which literally means "half-chord". For simplicity, people started calling it jya. When Arabic writers translated his works from Sanskrit into Arabic, they referred it as jiba. However, in Arabic writings, vowels are omitted, and it was abbreviated as jb. Later writers substituted it with jaib, meaning "pocket" or "fold (in a garment)". (In Arabic, jiba is a meaningless word.) Later in the 12th century, when Gherardo of Cremona translated these writings from Arabic into Latin, he replaced the Arabic jaib with its Latin counterpart, sinus, which means "cove" or "bay"; thence comes the English word sine.

4. Algebra

In Aryabhatiya, Aryabhata provided elegant results for the summation of series of squares and cubes of natural numbers.

FEW OF HIS CONTRIBUTIONS IN ASTRONOMY :

1. Motions of the solar system :

Aryabhata correctly insisted that the earth rotates about its axis daily, and that the apparent movement of the stars is a relative motion caused by the rotation of the earth, contrary to the then-prevailing view, that the sky rotated. This is indicated in the first chapter of the Aryabhatiya, where he gives the number of rotations of the earth in a yuga.

2. Eclipses :

Solar and lunar eclipses were scientifically explained by Aryabhata. He states that the Moon and planets shine by reflected sunlight. Instead of the prevailing cosmogony in which eclipses were caused by Rahu and Ketu (identified as the pseudo-planetary lunar nodes), he explains eclipses in terms of shadows cast by and falling on Earth. Thus, the lunar eclipse occurs when the Moon enters into the Earth's shadow .

VEDIC MATHS TRICK OF FINDING SQUARE ROOTS

Before starting the actual method, following points should be noted:

1. This trick works for square root of any number having maximum 5-6 digits.
2. This trick works only for perfect squares and not for any arbitrary number.

Number of digits in square root : We can find the number of digits in square roots using following explanation – Make groups of 2 digits starting from right side. Left most group will have 1 or 2 digits. Each group will contribute one digit in the square root. So, we can conclude that square root of a 3, 4, 5 or 6 digit number will have respectively 2, 2, 3, 3 digits.

We need following tables:

TABLE 1 : SQUARE OF NUMBERS FROM 1 TO 30						TABLE 2 : UNIT'S DIGIT OF SQUARE ROOTS	
NUMBER	CUBE	NUMBER	SQUARE	NUMBER	SQUARE	SQUARE ENDS IN	SQUARE ROOT ENDS IN
1	1	11	121	21	441	1	1
2	4	12	144	22	484	4	2
3	9	13	169	23	529	9	3
4	16	14	196	24	576	6	4
5	25	15	225	25	625	5	5
6	36	16	256	26	676	6	6
7	49	17	289	27	729	9	7
8	64	18	324	28	784	4	8
9	81	19	361	29	841	1	9
10	100	20	400	30	900	0	0

NOTE: Square of a number can never end in 2, 3, 7 or 8.

Example: Let's find square root of 2209.

STEP 1: Divide the number in two groups in which right group always has 2 digits and remaining digits will be in left group. The square root will contain 2 digits (as explained above).

STEP 2: Left digit is found from left group. We see that left group i.e., 22 lies between squares of 4 and 5. Smaller of these two will be the left digit. So, left digit of square root will be 4.

STEP 3: Right digit is found from the right group. This group ends in 9, so its square root will end either in 3 or 7 (from table 2). Now we need to choose between 3 or 7. We check the number 22 (left group) is closer to the square of which number : 4 or 5 ? It is 5. So the right digit will be second one out of 3 or 7, i.e., 7. Hence required square root will be 47.

PUZZLE 1 :

You are given two candles of equal size , which can burn 1 hour each. You also have a lighter. How will you measure (i) 90 minutes , (ii) 45 minutes, with these candles. (There is no scale or clock)..

PUZZLE 2 :

Take a three digit number (say x). Repeat the number on the right side of x. Now it becomes a 6 digit number. Now divide the number by 7. Next divide the quotient by 11, and, finally divide the quotient so obtained by 13. Can you tell me the result in terms of x ? Can you explain this ?

PUZZLE 3 :

There are 48 matches in a match box. Make three heaps of unequal number. Take off as many matches from the first heap as there are in the second heap and them to second heap. Then take as many matches from the second heap as there are in the third heap and add them to the third heap. Finally take as many matches from the third heap as there were left in the first heap and add them to the first heap. Now all the heaps will have equal number of matches.Can you find the number of matches in each heap ?

ANSWERS : SCIENTIST: C.N.R.RAO

Felice and Nicholas are the murderers. The numbers correspond to atomic numbers on the periodic table of elements: 'Fe-Li-Ce/Ni-Co-La-S'.

PUZZLE 3 : 22, 14, 12
