This is a quiz for all the students. Give in the right answers to Dívyam Agarwal and win a chocolate!

1) Which is the oldest scientific society in Great Britain and one of the oldest in Europe, founded in 1660?

2) What is the name of the Swedish chemist, engineer I industrialist who invented dynamite?

- 3) Who was the first physician to use chloroform as an anaesthetic?
- 4) What is the scientific name of the Bengal Tiger?
- 5) In which direction does the moon revolve around the earth?
- 6) Who invented the ball-point pen?
- 7) Where did the internet have its origin?
- 8) Which animal has two humps?
- 9) Who was the first woman in space?
- 10) What is Quicksilver?
- 11) What is 'Dandy Fever' or 'Break-Bone Fever' more commonly known as?

12) What causes Cholera?

- 13) Which Vitamin is water soluble?
- 14) Which is the oldest I most familiar type of compass?



-Divyam Agarwal(12S)



Sarthak Gupta, Shashank Upadhyay, Rishi Arora, Vaqisha Singh and Ankita Sharma.

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Special thanks to Mr. Radcliffe, Ms. McFarland, Mrs. Arya and Mr. O'Connor



Dear Readers,

"Effervescence" which was the brainchild of ISC is now into its second year and the students of Class 12 Science have taken over the responsibility of carrying the torch forward. However, we will need your support in our attempt to add a zing to a subject which is usually viewed with boredom and disinterest. Have you ever considered what life would be without science? In the age that is fuelled by science, a person who is indifferent to it lags behind. Science, as the dictionary defines it, is the knowledge about the structure and behaviour of the physical and natural world. In other words, it makes you see 'into the life of things' and is directly responsible for releasing the world from the clutches of ignorance and charlatans. Do you want science to become the bogeyman that it surely is not or will you join us in our interesting and exciting journey to discover its different facts? Jokes, poems, stories, interviews, opinions, cartoons, trivia- we have got a platform for whatever you've got- even the phobias which we might help to get rid of or alleviate.

Effervescence

Creation-Innovation-Invention

So let's:

See Create Invent And Endeavour To Nurture a Curiosity that is **E**ternal And let us do it together!

We are grateful to the students and teachers who have enthusiastically contributed towards this edition.



Developing Allen

(Rainwater Harvesting)

We have 9 water tanks next to the Science Block, each with a capacity of 10,000 litres and 9 water

Conserve precious rainwater

tanks behind the Science Block -each with a capacity of 5000 litres. Previously these 9 tanks were used to store water from the Wynberg stream and now, in addition to that, they are also being used to store rainwater from the rooftops and the area around the Science Block. But last year (in December), a new water filter plant was installed on our school campus, so now all the water stored in the above mentioned 18 water tanks is filtered using this filter plant.

Moving down, we have more water tanks next to the servant quarters-near the rink and the Auditorium. The biggest tank is made in the basement of the new multipurpose court which is nearing completion.

This tank has been divided into 4 parts using three parallel partitions. Of these four parts, one portion is strictly separated for the fire extinguishing

system in case of any emergencies. These tanks store the rain water being harvested from the rooftops of the Academic Block, Gymnasium and the Swimming Pool. Soon ,we will be ready to even harvest rainwater from our Auditorium. These four tanks have a total capacity of about 3.25lakh litres of water.

As of now, the total water storage capacity of these tanks is approximately **Four lakh Sixty Thousand** litres.

- Sarthak Gupta and Shashank Upadhyay (12S)

Breakthroughs

- -Japan ,in the process of making androids that could help the elderly, has launched a human android at the International Space Station which will control the mission while the astronauts are asleep. It will monitor their health too.
- -An excellent mosquito cream developed by DRDO (Defense Research and Development Organisation) does not let the mosquito feel the presence of blood in the human body.
- -German scientists have developed a hand-held scanner which says how healthy or unhealthy one is in less than 30 seconds.

-Researchers have identified a new gene that causes myopia or short-sightedness. Through this discovery, it will now be possible to come up with a new treatment technique for myopia. The scientists at the King's College, London have named the newly discovered gene 'RASGRF1'.

-ISRO plans to launch 8 spacecrafts annually.

-Use of excessive chlorine in pools can lead to cancer or asthma.

- -A molecular sponge has been invented to soak CO2.
- -German engineers designed an autonomous car which controls speed and direction according to the driver's thoughts.
- -Diabetes may cut life short by 6 years. It may even double the risk of heart attacks.
- -Snorers have a markedly higher risk of developing heart attacks, high blood pressure or strokes.

-Raghav Mutneja (10A)

Science belongs to no one country.

-Louis Pasteur

HOW TO WRITE A

Down 1.The

<u>Step 1</u>:Dab a cotton bud or a small paintbrush into a bou sage on a piece of white paper and let it dry. <u>Step 2</u>:Pass your secret message to a friend and instruct h liaht bulb.

<u>Step 3</u>:The lemon juice is slightly acidic and when the paper the paper turn brown before the rest of the paper does, re-

This Sudoku is only for the Junior Division The first student to answer all the questions will be given a delicious chocolate.

-
3.The j
4.Grea
which
5.Win
6.The J
8.The s
10.The
11.Our
13.The
14.The
15.Chu
the
17.It o

<u>Across</u>

2. Astronomers say that the universe was formed in an enormous explosion called the

14

	7 A man-made object circlina		
1	the earth	1	
1	8.The red planet		
1	9.Vast clusters of stars		
1	12.Second star from our solar		
ļ	system		-
-	16.A heavenly body with a		_
	long glowing tail		
	18.The time taken by a planet		
	for one revolution round the		
	sun		
	19. The time for one rotation		
1	of a planet on its own axis		-
	20. Darker, relatively cooler		_
	patches on the sun's surface	1.5	
1	21.The path of the planet	15	
1	around the sun		
1	22.An imaginary line around		
	which the earth spins		
1	23.The last but one planet of	21	
	our SolarSystem		
1	-Ansul Modi (12S)		
1	 		Ļ,

<u> Do you</u>

Walking a mile a day can keep memory loss and Alzheimer's disease at bay. Men and women who walk at least six miles a week are mentally sharper later in life than those who don't walk much. 11



SECRET MESSAGE
vl of lemon juice. Use the bud or brush to write a mes-
im/her to hold the paper up to a heat source, such as a
per is held near the source of light, the acidic parts of
vealing the hidden message Chandra Mishra (8A)
first man to go into space
first Indian satellite
t mass of hot gases in the top layers of the sun
h sometimes leaps outwards
ter/summer/autumn/monsoon each is a
pointer of the plough leads to it
smallest planet of our solar system
largest planet
galaxy
instrument used to Watch distant stars
nks of rocks from space which burn on entering into
atmosphere
ccurs when the shadow of the earth falls on the moon

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Electric Moon a Hazard for Humans?

The monthly full moon always looks like a big disc, but because its orbit is egg-shaped, there are times when the moon is at perigee-its shortest distance from Earth in the roughly month-long lunar cycle—or at apogee, its farthest distance from Earth. Likewise, because the size of the moon's orbit varies slightly, each perigee is not always the same distance away from Earth.

It is quite possible that electric fields induce a charge-up and subsequent discharge around a space



vehicle, which could bring about serious damages to human missions. The biggest hazards of an electrified moon may be that the static charge can transport large amounts of the moon's abrasive dust, which can damage sensitive lenses and electronic items. The static buildup can also lead to unexpected electrical discharges. Things might be very different during a solar storm, or during a passage through the plasma sheet, the region that was looked at in this study. Certainly when you have big electric fields, you start to worry about damage to sensitive electronic

items, etc. But the truth is that we don't really know yet what relevance these kinds of studies may have for exploration. Probably the only way we will ever know for sure is to go back to the surface.

There are scientific arguments for why the Supermoon and the Japan earthquake are not related and why the Supermoon is highly unlikely to cause extreme weather but in my opinion, weather is caused by an incredibly complex interaction between the Earth's rotation, the heat input from the Sun, the way the oceans and seas absorb and radiate heat, and a million other factors. If the Moon contributes in any way, it is very, very small compared to these other factors. So, there is no need to panic over this recent occurrence. -Astha Dhanai(12S)

....

THE CHEMISTRY BEHIND LAUGHTER Occurrence: It is present universally. It is found in abundance on the faces of students and sometimes on the faces of teachers. *Type*: A: Ha! Ha! Ha!- Full - throated and can be heard miles away. B: He! He! He!-Abundant in back benchers. C: Smile - The wide stretch of happiness that instantaneously appears across the students' faces when they get to know that a dreaded test has been postponed. *Methods Of Preparation:* A:Sometimes it is released as the result of a slip of the tongue. B: Could be the by-product of funny questions or comments. Physical Properties: A: Colourless, odourless, insoluble but audible. B: Tastes sweet to self but sour to others. Ha! *C*: *It is highly infectious.* Chemical Properties: Ha! It could lead to noise, which again may create an acidic substance called 'scolding'. When in concentrat-Ha! ed form, it may lead to the subject being forcibly removed. Chemical Equations: A: Back Benchers + Funny Questions = Laughter *B*: *Laughter* + *Noise* = *Scolding* C: Loud guffaws + Mischievous Children = Get Out D: Laughter + Acidic words= Tears Uses: A: To discard boredom from class. B: To show that you have brushed your teeth thoroughly. - Sarthak Bhatia(9A)

Eureka

derstood that the volume of water displaced must be equal to the volume of It the part of his body he had submerged. This meant that the volume of irregular objects could be measured with precision, a previously intractable problem. He is said to have been so eager to share his realisation that he leapt out of his bathtub and ran through the streets of Syracuse without wearing any clothes. Archimedes' insight led to the solution of a problem posed by Hiero of Syracuse, on how to assess the purity of an irregular golden votive crown. He had given his goldsmith pure gold to be used for making the crown, and sus--Rajat Singh Chauhan(12S)



This exclamation is most famously attributed to the ancient Greek scholar Archimedes; he reportedly proclaimed "Eureka!" when he stepped into a bath and noticed that the water level rose — he suddenly unpected the goldsmith of having replaced the gold with the same amount of silver. Equipment for weighing objects already existed, and now that Archimedes could also measure volume, their ratio would give the object's density, an important indicator of purity.

Science does not know its debt to imagination.

-Anonymous



MR. JACK SINGH IN SCHOOL

Have you heard of a certain Mr. Jack Singh applying to a medical school to become a doctor? Needless to say ,he never made it .Do you know why?

These are the answers he wrote in his entrance ex*am*...

What does it mean?

Antibody	- against everyone.	2
Artery	- the study of painting.	
Bacteria	- back door to a cafeteria.	
Chronic	- neck of a crow.	MSTALL.
Diagnosis	- person with a sloping nose.	SIGN
Dilate	- the late British princess	
	Diana.	1. A
Dislocation	- in this place.	
Duodenum	- couple in blue jeans.	AAR
Genes	- blue denim.	
Cactose	- people without toes.	CAME!
Microbes	- small dressing gown.	1.5
Obesity	- the city of obe.	NAME
Pacemaker	- winner of Noble Peace Prize.	AA)
Proteins	-in favour of teens.	0000
Pulse	- grain.	N
Red Blood Count	-dracula.	(I BAR
Tablet	- small table.	10 - C - 10



-Rimihim Jain(12C)

Movine Spisal Illusion

Stare at the centre for 10 seconds and begin moving your eyes around the outer



Does it appear to be moving, shimmering, or just making you dizzy? Also, follow the outermost groove and watch it change from a groove to a hump as you go around the wheel. -Shashank Upadhyay (12S)

> Science is a great antidote to the poison of enthusiasm and superstition. -Adam Smith

How do magnetic trains work?

Magnetic trains all over the world work on the principle of magnetic levitation, which is a way of lifting objects by using the forces keeping all the magnets apart. This concept makes the trains float above the tracks.

Magnetic trains carry very powerful linear motors which push against the powerful magnets which are laid on the special tracks. The magnets ahead of the train first attract the train (from the front) thus pulling it, and when the train has passed the portion, the direction of the magnetic field is reversed, repelling the train (from the back), thus pushing it forward.

The train and the track do not touch each other. There are no moving parts like the wheel and thus there is no friction between the train and the tracks, which acts as an advantage. -Kartik Agarwal and Tilak Raj (9A)

Japan's resilience against the forces of nature

Japan fought on Sunday to avert a meltdown at two earthquake-crippled nuclear reactors. Describing the massive quake and tsunami, which may have killed more than 10,000 people, as the nation's biggest crisis since World War II, a grim faced prime minister Naoto Kan told a news conference, "We're under scrutiny on whether we, the Japanese people, can overcome this crisis." As he spoke, officials worked desperately to stop fuel rods in the damaged reactors from overheating which could in turn melt the container that houses the core, or even explode, releasing radioactive material into the wind. According to the US Geological Survey (USGS), 112 aftershocks of magnitude 4.0 or greater have hit the same area as the original temblor and they are continuing with startling regularity. 18 of the aftershocks are in addition to the 35 significant foreshocks over the past week. The most significant of those was a magnitude 7.2 temblor that occurred on 12th March. -Iqra Baig(12 C)

Relax with Beautiful Bath Salts

What vou'll need:

- 1 cup of washing soda
- A plastic bag
- A rolling pin (or something similar that can crush *lumps*)
- A bowl
- A spoon for stirring
- Essential oil
- Food colouring

Instructions:

- 1. Put the washing soda into a plastic bag. Crush the lumps with a rolling pin or a similar object.
- Empty the bag into a bowl and stir in 5 or 6 drops of your favourite essential oil such as rosemary, lavender or mint.

3. Stir in a few drops of food colouring until the mixture is evenly coloured. 4. Put the mixture into a clean dry container and enjoy as you please. Bath Salts are typically made from Epsom salts (magnesium sulphate), table salt (sodium chloride) or washing soda (sodium carbonate). The chemical make up of the mixture makes it easy to form a lather. Bath salts are said to improve cleaning and deliver an appealing fragrance when bathing. -Vagisha Singh(12S) _....

Science is the systematic classification of experience





- George Henry Lewes

Fabulous Facts

- The insulation on the fuel tanks of the Saturn Rocket is so effective that an ice cube stored inside would take years to melt.
- Only one fifth of the oxygen we inhale is used by the cells of the brain.
- During the dissection of a common European toad, 363 ants were found in its stomach.
- Cubes of ice insulated in glass-fibre have been baked in an oven at 190 c without melting.
- A mature beech tree may give off as much as 680 litres of water on a windy day.
- In proportion to its size and weight, a bird's feather is the strongest natural structure.
- A newly hatched crocodile is three times larger than the egg from which it emerged.
- Snakes feel by picking up sound waves with their tongues.
- At the present rate of erosion, it has been calculated that the Niagra Falls would disappear in 25,000 years.
- If you shake an egg enough it is possible to make it stand on one end. The yolk breaks and sinks to the bottom of the shell.
- Over half the volcanoes that are active today are situated around the shore of the Pacific Ocean.
- Sugar added to cement helps to strengthen it as a building material.
- About fifty kilometres beneath the surface of the earth, the temperature reaches the melting point of rocks.
- Jupiter is large enough to contain all the planets in the solar system.
- Banana oil does not come from bananas; it is a chemical distillate from coal.
- Tongue prints are as unique as fingerprints.

-Sarthak Gupta(12S)

SCIENCE EXPRESS

Science Express is a unique science exhibition on a 16-coach, fully AC train, travelling across India. This exhibition showcases cutting-edge research in Science. An Indo-German collaborative project; it was flagged off on 30 October 2007 by the Honourable Prime Minister of India, Dr. Manmohan Singh and German



Chancellor Dr. Angela Merkel. This innovative exhibition has received an unprecedented response and created four national records. During its three phases till April 2010, it has been visited by over 51 lakh people, mostly students. So far, it has travelled over 50,000 km, covering 150 locations, during its 600 exhibition days.

This state-of-the-art mobile exhibition attempts to develop scientific temper amongst the masses and encourages students to pursue higher studies and careers in science. It hosts interactive exhibits developed by Max Planck Society, Germany; Department of Science & Technology (DST), Govt. of India and Vikram A Sarabhai Community Science Centre (VASCSC), Ahmedebad. It also houses the 'Joy of Science' hands-on lab for conducting Science & Mathematics experiments, as well as exhibitions on Climate Change and India's heritage in Science & Technology. It is a marvelous ex--Abhishek Gulati (10A)

hibition on climate change and India's heritage in science and technology.

Black holes

Black holes are the latest puzzles of Astrophysics. They are known to be made by made by general relativity and gravitation. If the prediction is right then there should be about billions of black holes in our galaxy. It is also suggested that stellar evolution causes the formation of black holes. In the new research it has been found that a black hole can be so big that it can suck up a whole galaxy. The mystery of the black hole is yet a mystery. -Rajat Singh Chauhan (12S)

DNA Fingerprinting : A Report

This is also called DNA typing or DNA profiling. This is a method of ascertaining relationships and the identity of a person by means of DNA fingerprinting, which is unique to each individual. The DNA fingerprint consists of the patterns of DNA parts obtained in the restriction analysis of certain highly variable repeated DNA fragments within the genome (total number of genes) whose number and arrangement are unique for each person. Every individual organism is unique.

Each person has a unique DNA fingerprint. The DNA fingerprint of a person is the same for every cell, tissue and organ.

DNA fingerprint cannot be altered by any known treatments. This technique was founded byAlec Jeffreys in 1984. The ideal way to distinguish an individual from other people on earth would be to describe entire DNA sequences of the person.

For example:

Mr. X and Mr. Y both claim that Edward is their son and want to take him away. In another case a murder is committed and an innocent person is being implicated. How can these cases be decided?

Here DNA fingerprinting helps to solve these cases scientifically. In the first case, the DNA of Mr. X and Mr. Y can be compared and in the second case the blood stains or any hair found at the scene of crime can be tested for the identification of the murderer. Nowadays DNA fingerprinting has become a useful technique in forensic science to nab the guilty. Isn't it cool!!! If you want to be a detective then forensic science is what you should pursue!

HOW DO ROBOTS WORK?



Robots are machines that can perform complicated series of tasks automatically. They largely consist of a mechanical arm with a gripper, like a pair of tongs at one end. Those are hydraulic motors inside the arm that can move the arm and gripper in any direction. They are mainly used to do jobs that involve carrying out the same action over and over again like painting, welding, loading, unloading, etc. A robot is first taught the various movements. A human operator uses the controls to make the robot perform the action. The controls contain a memory like a computer memory -Priyank Mayur Nanda (9A)

that remembers all the positions.

A Birthday Experience in the Chemistry Lab

It was my birthday, and we had two Chemistry practical lessons. As always I was keen and excited to go up to the Chemistry lab to carry out various experiments myself. From the smell of the different gases to the beautiful shades of the colours produced in the test tubes, everything is very fascinating . Well, that day I added water to what seemed like something completely harmless and later discovered that it was acid. The result was an awful splash on my face . First aid was administered at once and I learnt the important lesson that all students should learn to proceed with caution in any laboratory

Just for fun (Please give in your answers to Ms M Mehrotra) Q: Which liquid turns into solid on heating? (Asked by Ms M Mehrotra) Science is simply common sense at its best, that is, rigidly accurate in observation, and merciless to fallacy in logic. -Thomas Henry Huxley _....



-Vagisha Singh(12S)

-Palak_Gupta(12S)

What were your views about 'Science' as a student?

Mr. Tindale

Oh! I loved it. Might be people don't believe it but I particularly liked Physics, but not Chemistry... especially Organic Chemistry. I loved (and still love) technology. But anyway if I were to rate them , it would be something like this: Physics – Biology – Maths – Chemistry. Mr. Radcliffe I liked Science very much. But I was more fasci-

nated with the practical lessons.



Mrs. Arya I didn't like Physics. Couldn't understand anything. Mrs. Pundir I always found it challenging, but Mathematics was horrifying. Mr. Mani

Physics and because I studied Science at school, I understood things better.

Ms. Mehrotra

Amazing! Wonderful!

Mr. McFarland

It was very interesting and not dry like other sub-

jects...It is challenging...

Ms. McFarland I didn't like it as much as I like it now. Students

should start liking it now before they regret not liking it.

<u>Mr. Ku</u>mar

I actually liked Science. But I didn't like Chemistry and particularly Chemistry practical– I hated those smells.

Mrs. Radcliffe

I always felt that Science was the easiest subject, just because it could be easily understood and it was not like History, Civics or Biology which require rote learning.

Mr. Negi

I liked Biology, but not Chemistry..it was tough for me.

Ms. Edgar

I was always suffering from one ailment or anoth- fascinated me. er and that is why I am not so sure which one I liked in articular.



Mr. K. Singh In Science, I liked Physics the most, but Biology, I didn't even study. I only studied it to pass the examination. Anyway, Physics had always been my first preference. Mr. R. Chowdhurv Till today I feel that I don't like Chemistry at all. Mrs. Chowdhury Definitely a revolutionary subject... Ms. Banerjee I liked studying Physics and Chemistry, but Bio.... Mr. Champa *Oh! Actually I don't remember anything about my childhood.* But now I feel that Science has helped mankind in many ways, but it has also made mankind very lazy. Mr. Kurian Science! As a child I found it interesting, especially It was good to know the basics of Science and I think that one should not leave science as their option at an early age. Mr. S. Singh I liked Science and whenever we had a class, I used to forget everything around me, and just used to focus on what the teacher was teaching. Mr. Sharma It is tough... but good for one's career.



Mr. Teron

Of course I liked it...especially Biology ... Mrs. Daniel

I really liked Science, especially because it is a systematical study. Mrs. Hatwal

I never liked it...never thought of Science.

Mr. Misra

Actually I liked Science, but couldn't develop any special interest as it was not taught to us properly. I would like to illustrate it through a couplet in Urdu 'Woh ek parda utha rahein hain to hazar parde gira rahe hain'. I would simply like to say that God's creation is very beautiful and there is too much to explore.

Mr. Bhatt

By nature I am very curious and that's why Science always

Mrs. Sharma

It had always been exciting for me. I liked Biology but not Chemistry.



Mrs. Swynenberg

When I was very small, Science seemed magical, but when I grew up, I liked it and it was fun.

Mrs. Misra

I didn't like it so much, only liked Bio....

The Phenomenon of Minterline

The winterline is a natural phenomenon which can be observed from two places in the world-Switzerland and Mussoorie. From mid-October to January, when the sun sets, the western horizon turns a combination of red, yellow, orange and mauve. It is like an imaginary line created by nature, separating the false horizon witnessed from the hill station town of Mussoorie overlooking the Doon valley. The line separates the grey murky air from the beautiful sunlit orange/pink sky. It seems like a painting in the sky. The light is divine and adds to the beauty of the Doon valley. We are lucky to witness this marvel of nature every evening during winter. -Palak Gupta(12S)

BECOME INVISIBLE WITHOUT A SUIT

It is possible in theory that you could line your body with Rhodopsin proteins all along the epidermis of your skin and you could then use these proteins to detect the incoming light around you from all directions (the INPUT part of the problem). Now we come to the more difficult problem of how to get the body to OUTPUT the colours of light for which we need to perfectly mimic the INPUT signals we have just received. Generating the proper OUTPUT of colours all over your body surface would require each skin 'pixel' to be a maximum size of say 0.1 mm to ensure that no human eye could be visually acute enough to see that you are not invisible, even when their proximity to you is within a foot. Recalling that molecules emit colour based on their 'conjugated diene' structure, it is possible that we could genetically engineer proteins that produce molecules of all the required colours for the OUTPUT. These proteins could be placed locally in the epidermis where they would be interspersed in a mosaic beside our INPUT 'Rhodopsins' and then an INPUT 'Rhodopsin' situated 180 degrees (opposite side of the body) could send an electrical signal through a nervous system (a special nervous system suited to connect INPUTS and OUTPUTS) to tell the OUTPUT protein to generate a molecule that mimics the 180 degree INPUT. This is the idea that can be used to create biologically induced invisibility. -Palak Gupta(12S)



NASA SCIENTIST CLAIMS TO HAVE FOUND AN ALIEN LIFE FORM (SOURCE: THE TIMES OF INDIA)

London: A NASA scientist claims to have discovered an alien bacteria in meteorites which have fallen in remote areas across the globe. According to Dr Richard Hoover, an astrobiologist with NASA's Marshall Space Flight Centre, the alien life form could explain how life on Earth started. Travelling to Antarctica, Siberia and Alaska, he has studied an extremely rare form of meteorites—CI1 carbonaceous chondrites—of which only nine are known to exist on Earth. "I interpret it as an Indication that life is more broadly distributed than restricted strictly to the planet Earth. The field of study has just barely been touched because-quite frankly, a great many scientist would say that this is impossible". "The exciting thing is that they (the bacteria) are in many cases recognisable and can be associated very closely with the generic species here on Earth. There are some that are just very strange and don't look like anything I've been able to identify," Dr Hoover said. -Arpita Mamgain(12S)



