

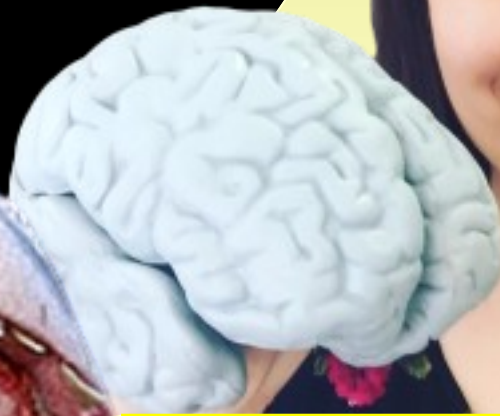
# The Next Truth

## Young People Science®

Volume 1 Issue 4

July/August 2020

Can Sugar  
Rewire the  
Brain?



At The Dentist

Do Animals  
Have  
Taste Buds?



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## The Next Truth

## Cheryl & Chad Wilson



Welcome to the very first podcast of "The Next Truth; Where Science and Myth Meet", a weekly podcast in where scientists and citizen scientists speak about their incredible research with you to explore these awe-inspiring theories, mind dazzling paradoxes, the connections between accepted and noetic science and... everything in between.

I'm your host Maria Anna van Driel and this week I have the privilege to speak with Cheryl Knight-Wilson and Chad Wilson who are the founders and owners of Paranormal Underground magazine. **[www.paranormalunderground.net](http://www.paranormalunderground.net)**

Not only are Cheryl and Chad's magazine and podcasts your connection to the paranormal world as they are covering a wide variety of topics that are beyond the scope of normal scientific understanding... they are also the backbone of The Next Truth! Without their support, courage and energy... The Next Truth would never been born in the first place.

**[www.bbsradio.com](http://www.bbsradio.com)**



# The Broken Nobel Prize Dream that Launched a Mentoring Platform

By Prof. Dr. Amal Amin, [www.researchgate.net](http://www.researchgate.net)

I work in a region where research is grossly underfunded, and gender biases lurk in many corners. I once dreamt of winning a Nobel prize in chemistry — but that's no longer the case. Instead, I want to help young scientists in Egypt and the Arab region to overcome challenges, and maybe to achieve what has become an impossible goal for me.

In my opinion, part of the problem in science, technology, engineering and maths research in this region and elsewhere is that scientists are too focused on their disciplines — to the point of isolation.

Chasing deadlines and research results while fitting in teaching and administrative work means that we don't talk to each other enough, and sometimes we don't know how to work with scientists in different fields or at other institutions.

The culture and environment in which many of us work mean that issues such as the inclusion of women and the mentoring of young minds become secondary or unimportant compared with the responsibilities we shoulder every day.

To help tackle this, I mentored some young scientist members of the Global Young Academy, an international society of young scientists that I co-founded in Berlin in 2010. In 2017, I launched Women in Science Without Borders (WISWB) as a networking and coaching platform for men and women, early-career and seasoned scientists to collaborate and support each other, and to help them to achieve what I and many members of my generation could not. Its members are drawn from 48 countries.

The idea behind WISWB came about over many years. It started in 1999–2001, during my PhD programme at Ulm University, Germany, and took shape during long hours spent in the lab and visits to the United States and France in 2008 and 2010, and while I was as an associate professor in Egypt. The idea also developed as I networked at conferences in more than 35 countries.



Amal Amin is an associate professor of polymers and nanotechnology at Egypt's National Research Centre in Cairo and the founder of Woman In Science Without Borders (WISWB)  
[www.facebook.com/WISWBINITIATIVE/](https://www.facebook.com/WISWBINITIATIVE/)

But the seeds for action were truly sown when I mentored my daughters after they chose to pursue science careers, and looked to me for answers. My eldest is now studying medicine, and her sister specializes in biological sciences in high school.

My aims for WISWB were six-fold:

- To empower young scientists and turn them into future leaders.
- To increase public awareness of science.
- To boost science literacy and education among the public.
- To help scientists to shape science policy.
- To help to reverse the 'brain drain' that Egypt and other countries are experiencing.
- To encourage collaboration and multidisciplinary work at the intersection of science, society and industry. >>>



The launch of WISWB in 2017 was mostly received favourably by scientists in Egypt and the general public. But I did detect some resistance to granting a 'bigger space' in the field for girls and women.

Egypt's educational system, media and society — like those in many developing countries — do not empower women to chase their dreams, leadership roles or coveted grants, or to choose challenging fields of study. Many women are barred from joining effective professional networks to further their research endeavours. And they're often expected to prioritize forming a family over building a career.

So one major challenge was lifting some of the limitations placed on female scientists, without alienating male colleagues who are deeply immersed in their own fields, chasing promotions and accolades.

I reached out to peers all over the world to grow a platform that transcends gender issues, cultural misunderstandings and age differences.

Although "women" is part of the name, WISWB is not about separating genders, but helping an otherwise-marginalized group to advance, side-by-side with supportive male colleagues.

I didn't want it to be an advocacy group, or to create female-exclusive science programmes. The platform's slogan, "science for sustainable development", is about supporting and empowering the relationships between all genders.

The first WISWB conference took place in Cairo, and the following year the event was in Johannesburg, South Africa. In 2019, it returned to Cairo with a new name, World Forum for Women in Science. At this meeting, despite tensions between India and Pakistan, female scientists from the two countries forged what could possibly be lifelong alliances in the lab, as well as friendships.

In February 2020, the event was held in Rio de Janeiro, Brazil, and was supported by the Brazilian Academy of Sciences.

Our other supporters include pharmaceutical company Sanofi, cosmetics firm L'Oréal, research-funding charity Wellcome, science publisher Elsevier, the Egyptian academy of science and technology, the International Science Council and the Arab Science and Technology Foundation. Our events include public-engagement sessions at which scientists simplify science for a lay audience, and a student competition with a sustainable-development focus.

Later this year, we hope to organize a youth science forum in Egypt aimed at secondary-school students and early-career scientists. And we're planning an event for refugees in Duhok, in Iraq's Kurdistan region, at the end of the year.

I have spent most of my life trying to

achieve as much as possible before turning 40 — the apex of a scientific career, after which opportunities in science in many countries narrow.

That was another personal reason behind my founding of WISWB: I wanted to mentor and guide others during the golden years of their careers — a privilege I didn't have — and to allow them a safe space to exchange expertise and success stories. I wanted to create a place where scientists of all genders, ages, nationalities and backgrounds could work together for a better shared future.

■ ■ ■

*Prof. Dr. Amal Amin article was first published on the website of Nature a place for Nature readers to share their professional experiences and advice.*

**[www.nature.com](http://www.nature.com)**

**<https://www.nature.com/articles/d41586-020-01274-z>**



*Women in Science Without Borders was launched to empower women and girls to pursue scientific careers.*

Photo credit: Claudia Wiens/Alamy



# Contributors



## **Amal Amin Ibrahim Shendi (Cairo, Egypt)**

Dr. Amal Amin is an associate professor for nanotechnology/polymers at national research center at Cairo- Egypt with large number of publications, projects, awards and other research activities. Amal was the president and cofounder of the Egyptian society for advanced materials and nanotechnology (ESAMNT) and ex-coordinator of the Arab materials science and nanotechnology network (AMSN-ASTF). She was TWAS young affiliate and has a especial interested in e.g. science communication, increasing public awareness/literacy for science, science advice/diplomacy.

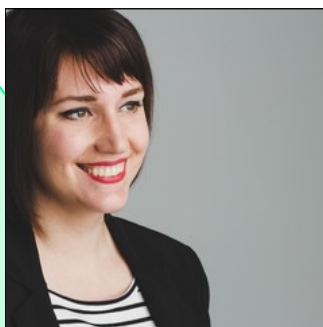
[www.researchgate.net/profile/Amal\\_Amin4](http://www.researchgate.net/profile/Amal_Amin4)



## **Rokas Laurinavičius (Vilnius, Lithuania)**

Rokas is a writer at Bored Panda with a BA in Communication. After working for a sculptor, he fell in love with visual storytelling and enjoys covering everything from TV shows (any Sopranos fans out there?) to photography. Throughout his years in Bored Panda, over 235 million people have read the posts he's written, which is probably more than he could count to.

[www.boredpanda.com](http://www.boredpanda.com)



## **Amy Reichelt (Canada)**

As a neuroscientist, Amy is fascinated with how our brains control our behaviours in our dynamic and changing world. She is currently a BrainsCAN Research Fellow at Western University, Canada. Her research seeks to explore how the brain controls our behaviour and understanding the mechanisms by which our experiences in the environment can shape our responses to events. To watch her video "This Is Your Brain On Sugar"

[www.tedxsydney.com](http://www.tedxsydney.com)



## **Suzanne Raga (Charleston, South Carolina)**

Suzanne is a writer/editor who specializes in creating incisive, actionable content for businesses and brands. Suzanne loves writing about everything from history, business, music, and literature to personal finance, life hacks, food trends, and health. A graduate of Princeton University, she is the author of *You Rock! How To Be A Star Student & Still Have Fun*, curator of the indie music blog *After The Show*, and a whiz at Latin Scrabble.

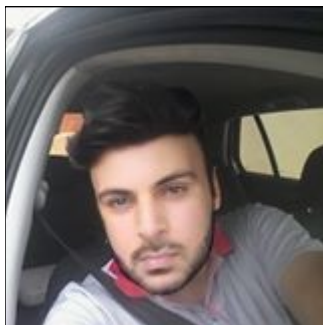
[www.suzanneraga.com](http://www.suzanneraga.com)





## **Ilona Baliūnaitė (Vilnius, Lithuania)**

Ilona is a photo editor at Bored Panda with an MA in Communication Of Creative Society. Before Bored Panda, she worked as a social media manager and freelance graphic designer. When she is not photo-shopping or searching for the most interesting photos for stories, she is usually watching good movies and says that The Godfather is the best. [www.boredpanda.com](http://www.boredpanda.com)



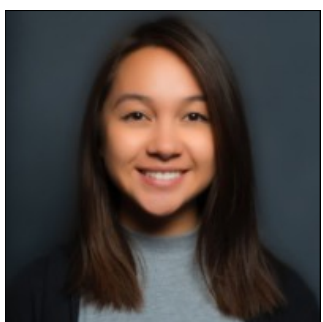
## **Hidrelêy Diao (Botucatu, Brazil)**

Hidreley is fascinated by music, movies and sitcoms. He is passionate about social media and cannot live without the internet, especially for all the cute dog and cat pictures out there. he wishes the day had about 40 hours to be able to do everything he want. [www.boredpanda.com](http://www.boredpanda.com)



## **Shahram Heshmat (Springfield, Illinois Area)**

Dr. Heshmat Ph.D. earned his doctorate in Managerial Economics from Reseller Polytechnic Institute (RPI). He has been teaching for over 20 years. His specialty is Health Economics. Courses include Addiction, Public Health Economics, Food & Health, and Human Well-Being. His research interests focus on addictive behavior from behavioral economics perspective. His passion is to make economic education relevant and interdisciplinary for non-majors and to reach a broader audience. Dr. Heshmat retired from UIS in May 2014. [www.uis.edu](http://www.uis.edu)



## **Pauline Lacsamana (Rhode Island Area)**

Pauline is a freelance writer and editor specializing in lifestyle, food, and travel. Pauline also has a background in public relations and social media and has worked with fashion and beauty brands to secure print and digital media placements and plan and execute social media content and strategy. When she's not writing, Pauline can be found scoping out hidden gems in the city and capturing everyday city life with film and digital photography. [www.paulinelacsamana.com](http://www.paulinelacsamana.com)

Questions you have been walking around with for years? The Next Truth provides an answer!  
**Email your questions to:**  
**[info@nexttruth.com](mailto:info@nexttruth.com)**





# Sweet Facts About Your Favorite Halloween Candies

By Suzanne Raga, [www.suzanneraga.com](http://www.suzanneraga.com)

It's no surprise that candy delights kids and adults alike. We love sweets so much that the average American eats about 22 pounds of candy each year. Whether you're looking to impress your friends or simply brush up on your candy trivia, check out these 50 sweet facts about your favorite candies.

For more sweet facts, [www.mentalfloss.com](http://www.mentalfloss.com)



## THE TRUE ORIGIN OF THE BABY RUTH BAR HAS BEEN DEBATED FOR DECADES

Introduced in 1921, when baseball player Babe Ruth was a national hero, the Curtiss Candy Company reformulated their Kandy Kake confection and gave it a name reminiscent of sports royalty: Baby Ruth. But when Ruth licensed his name for another bar in 1926, Curtiss cried foul, claiming it would cause consumer confusion and swearing that they had named their bar not after the baseball legend but after Ruth Cleveland, the deceased daughter of President Grover Cleveland. Even though “Baby Ruth” had died of diphtheria in 1904 and would be an odd choice for a candy bar name, the courts agreed; Ruth never got in on the treat trade.

## THE PHRASE TOOTSIE ROLLS MEANT SOMETHING OTHER THAN CANDY DURING THE KOREAN WAR.

U.S. soldiers in the First Marine Division used the phrase as a code-name for mortar shells. But the real candy came in handy when the soldiers used chewed-up Tootsie Rolls to patch holes in their vehicles' fuel lines.

## THE CREATOR OF REESE'S PEANUT BUTTER CUPS NAMED THE TREAT AFTER HIMSELF

Harry Burnett Reese sold the Lizzie Bar and Johnny Bar, candy bars he named after his daughter and son, respectively. But his chocolate-covered peanut butter cup creation, which he named after himself and called Reese's Peanut Butter Cups, was his real hit.





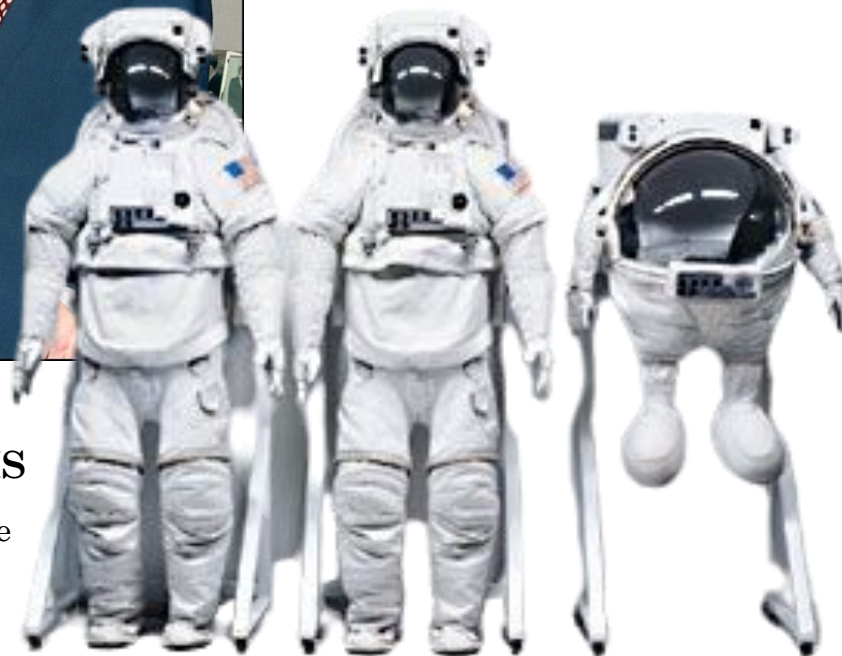
Photo credit: PAUL RICHARDS/  
AFP/Getty Images

## PRESIDENT RONALD REAGAN REALLY LOVED JELLY BELLY JELLY BEANS.

He loved eating them so much that Air Force One was outfitted with special jelly bean holders, lest turbulence cause his beloved beans to spill.

## ASTRONAUTS LOVE M&MS

M&Ms have proven to be among the more popular candy requests for astronauts on space missions. Because they're bite-sized and candy coated, they don't make much of a mess. They can also be released in the air and gobbled up, Pac-Man style, by space travelers.



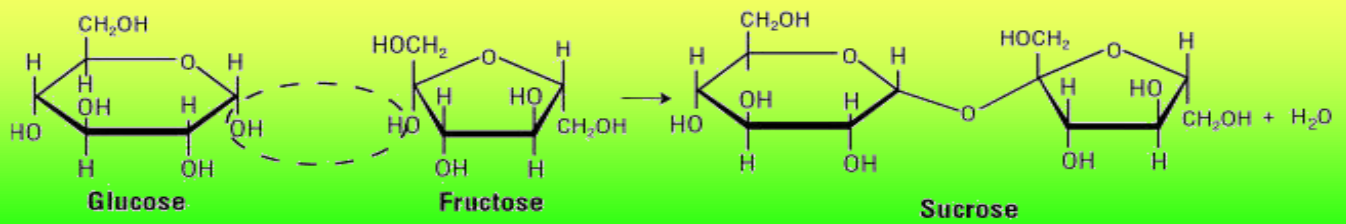
## A DENTIST INVENTED COTTON CANDY.

You wouldn't expect a dentist to be responsible for helping to pioneer a new type of candy, although maybe he was hoping it would drum up some cavity-related business. In 1897, dentist William Morrison partnered with confectioner John C. Wharton to devise a machine that used centrifugal force to turn sugar into cotton-like strands. The result was cotton candy, but that name didn't come until the 1920s. Morrison and Wharton called their treat "Fairy Floss." And who says this treat is just for summer carnivals? These days, you can buy cotton candy in several Halloween varieties, including Werewolf Hair and Pumpkin Guts.

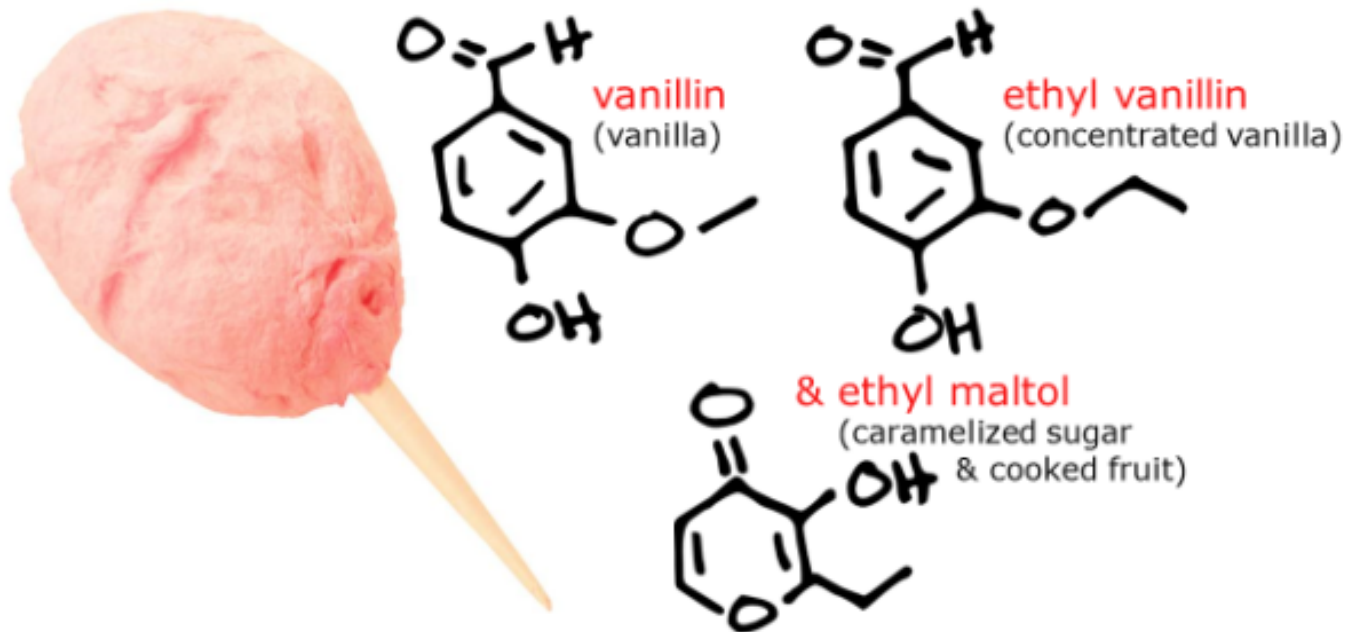


Photo credit: iStock





The generic pink cotton candy flavor is a combination of:



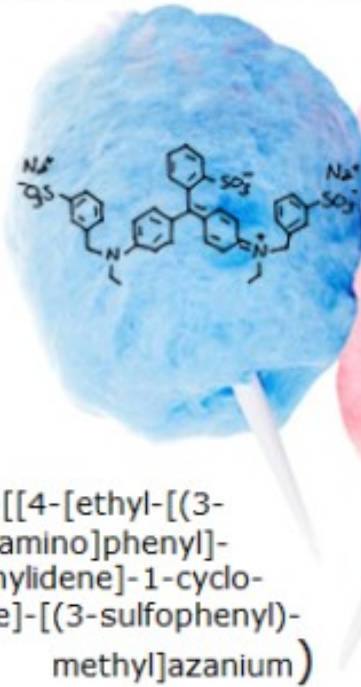
Cotton candy is **100% sugar**, with a trace of flavorings and colors.



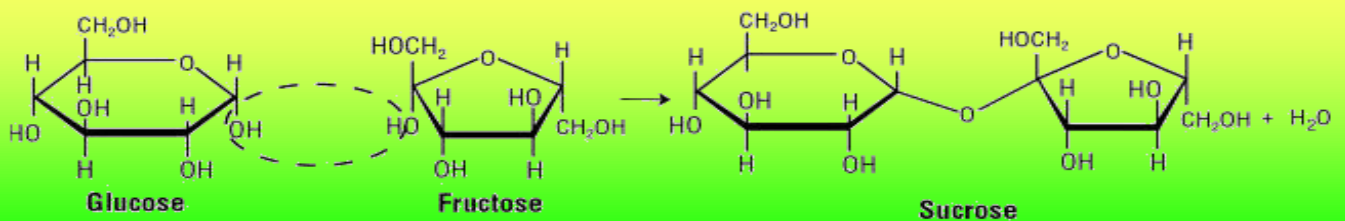
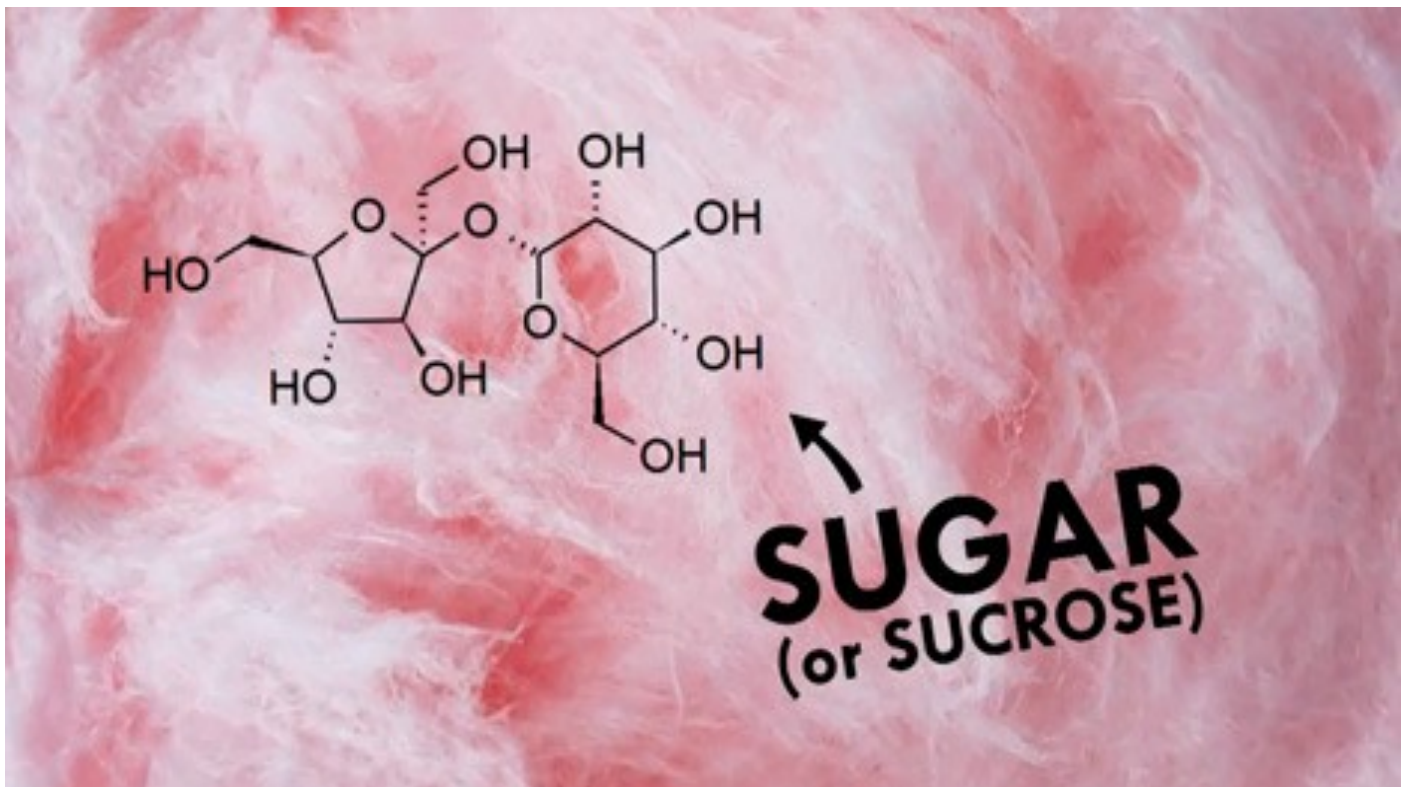
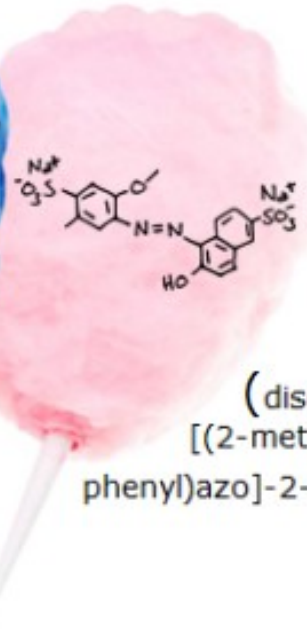
1 serving  
= 1 ounce  
= 26 g sugar  
= 439 Joules  
= 105 kcal  
= 105 Calories

# Popular cotton candy colors

Erlosky Blue  
= Blue 1



Allura Red  
= Red 40





# What is diabetes?

**D**iabetes is a disease that causes a person to have high blood sugar. Over time, high blood sugar can damage organs such as the kidneys and heart. Nerve and blood vessel damage can lead to blindness and even the need for amputation of extremities such as the toes.

High blood sugar is a result of the body not getting enough insulin or not responding to the insulin it is getting.

## What is insulin?

Insulin is a hormone produced by an organ called the pancreas. Insulin takes the sugar in our blood (also called glucose) and helps it get absorbed into our cells. Our cells then use the glucose for energy.

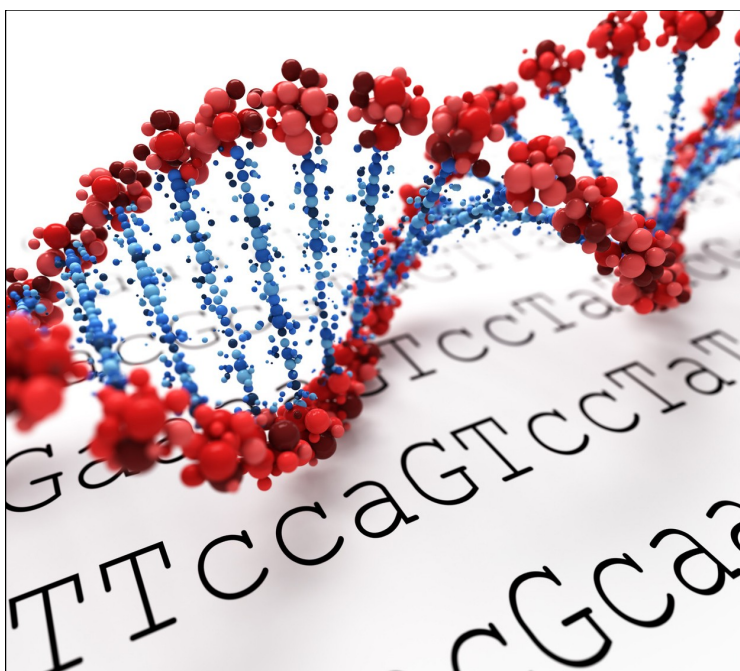
## Why is insulin important?

When there isn't enough insulin in the blood two things happen. First, the glucose level in the blood increases. As the body continues to eat food, carbohydrates are turned into glucose and absorbed into the blood stream to be used for energy.

If there is no insulin, the glucose can't be absorbed by the cells and used up. Second, the cells are starved of energy. They end up getting their energy from fat.

## Type I or Juvenile Diabetes

Type I diabetes is caused when the body's own immune system decides to attack the pancreas and destroy the cells (called beta cells) that make insulin. Doctors aren't sure what causes the immune system to do this, but, once all the beta cells are destroyed, the pancreas will stop producing insulin.

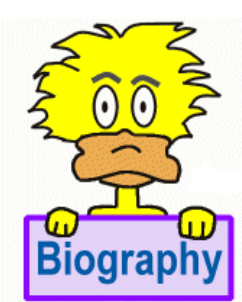
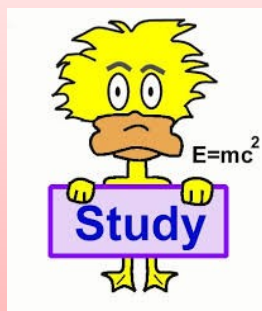


Type I diabetes is often referred to as juvenile diabetes. This is because most people are first diagnosed with the disease while they are still young. However, some people do get the disease later in life. Also, once a person has the disease they will have it for their entire life. There is no cure.

## Type II

Type II diabetes is when the pancreas doesn't produce enough insulin for the body or that the insulin isn't working right. When the insulin isn't working right, this is called "insulin resistance."

Type II diabetes is different than Type I. Type II tends to occur in older people who are overweight. Losing weight, eating a healthier diet, and exercising can all help in avoiding and slowing down the onset of Type II. >>>





Although Type II is associated with being overweight, not all people who are overweight get Type II and not all people who have Type II are overweight. Doctors aren't sure what causes Type II diabetes, but in addition to weight, factors such as race, age, and family history also contribute to the risk of getting the disease.

### Diabetes Symptoms

Common symptoms of diabetes include increased thirst, frequent urination, weight loss, bad breath, and nausea. Not everyone who has diabetes will show symptoms right away, especially those with Type II.

### Living with Diabetes

Although diabetes (especially Type I) can cause death if untreated, people are able to live long and normal lives with the disease. The key to living with diabetes is monitoring and controlling the body's blood sugar level. Some people with Type II can control the disease through exercise and a healthy diet. Others may need to take pills or inject insulin. Since people with Type I diabetes produce no insulin they have to inject insulin on a regular basis.

### An Example of Type I Treatment

A person who has Type I diabetes will typically go through this routine every time they have a meal.

Test their blood sugar - This is done by pricking their finger and testing their blood with a blood sugar tester.

Count the carbohydrates in their meal - They need to know how many carbohydrates they ate to adjust their insulin dose.

*Inject insulin* - They then inject a certain amount of insulin based on how many carbohydrates they ate and their current blood sugar.

### Interesting Facts about Diabetes

Insulin was discovered by Dr. Frederick Banting and John Macleod in 1921. Prior to this, diabetes was a fatal disease.

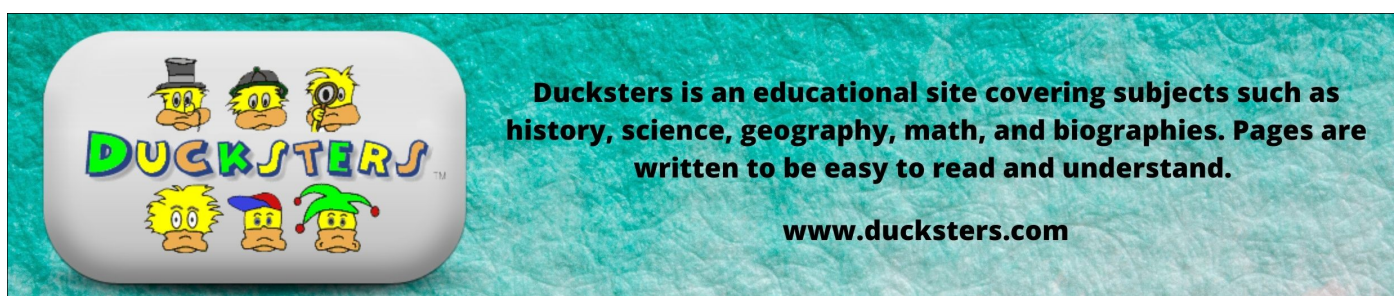
The first person to receive an insulin injection was a fourteen year-old boy in 1922.

Many people are able to use insulin pumps to automatically deliver insulin. They still have to test their blood sugar and give the pump instructions, but they don't have to have shots all the time.

Macleod and Banting won the Nobel Prize in 1923 for their discovery.

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\* This article is not to be used as medical advice in any way. Please immediately consult your doctor if you have medical concerns.





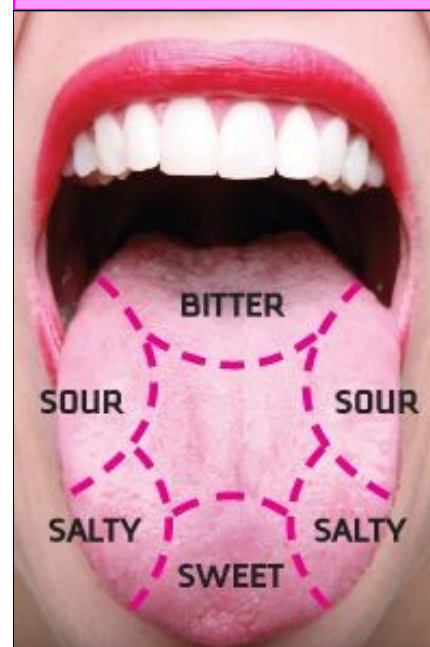


## Do dead taste buds fall off?

Taste buds go through a life cycle where they grow from basal cells into taste cells and then die and are sloughed away. According to Dr. Bartoshuk, their normal life cycle is anywhere from 10 days to two weeks. However, "burning your tongue on hot

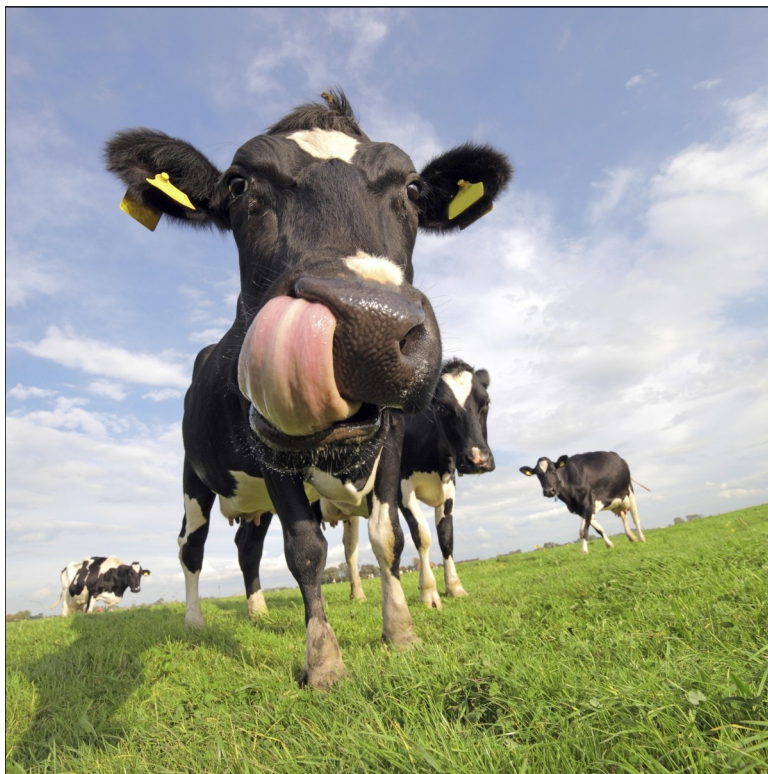
## Why Do Some Animals Have More Taste Buds?

**Taste buds** serve an important survival function; those tastes that an animal's buds determine are bad might be poisonous or harmful in some way. Yummy tastes typically mean the food is safe to eat. While animals taste similar flavors as humans -- bitter, sweet, salty, sour and umami, or tasting amino acids found in foods such as meats and cheeses -- not all animals have the same number of taste buds.



**Carnivores**, or animals who eat only meat as part of a normal diet, typically have fewer taste buds than omnivores. Lions, for example, have about 470 taste buds on their tongues, while humans, who eat fruits, vegetables and grain in addition to meat, average 10,000 taste buds. Most carnivores can detect bitter flavors, which helps them avoid rancid meat, but some, including big cats and water mammals such as dolphins, can't taste sweet flavors, they lack the proper taste buds. Meat isn't sweet, so those taste buds don't help carnivores survive and are unnecessary. When your meals consist of pretty much one type of item 'meat' you don't need as many taste buds.





**Herbivores**, or animals that eat only plants, often have more taste buds than other land animals. Cows, for example, have about 25,000 taste buds. Like many herbivores, cows don't take a close look at their food -- they just munch away on what's close. The extra taste buds help herbivores quickly distinguish bitter tastes from dangerous plants that might be growing among safe vegetation.

The sweet taste buds guide them to safer eating areas. Herbivores need salt to keep proper electrolyte balances and they don't get salt from meat like omnivores and carnivores, so the extra taste buds help them find salty substances to supplement their diets.



**Omnivores**, or animals that eat both plant matter and meat, tend to have taste buds that allow them to taste all five flavors, including sweet, causing them to have more taste buds than carnivores. Pigs, for example, sport around 15,000 taste buds. The ability to taste sweets helps draw omnivores to carbohydrate sources, such as fruit, which carnivores hardly ever eat. Many birds are omnivorous, but they are an exception to the rule of having more taste buds than carnivores by having some of the lowest numbers of taste buds in the animal kingdom. Birds eat "meat" in the form of worms, grubs or insects, but they also enjoy berries, seeds and grains. But chickens, for example, typically have 30 taste buds or fewer. Parrots have a few hundred taste buds, but they don't rival the number of taste buds in other omnivores.



**Fish** tend to have more taste buds than land animals, and the taste buds aren't confined to their mouths. Many fish have taste buds on their skin. This helps them detect tastes through the water and determine which direction the taste is located. Catfish, who often swim and hunt in murky water where sight isn't very helpful, have the most known taste buds of any animal, topping out at 175,000.



# The Periodic Table

**T**he Periodic Table is a way of listing the elements. Elements are listed in the table by the structure of their atoms. This includes how many protons they have as well as how many electrons they have in their outer shell. From left to right and top to bottom, the elements are listed in the order of their atomic number, which is the number of protons in each atom.

## Why is it called the Periodic Table?

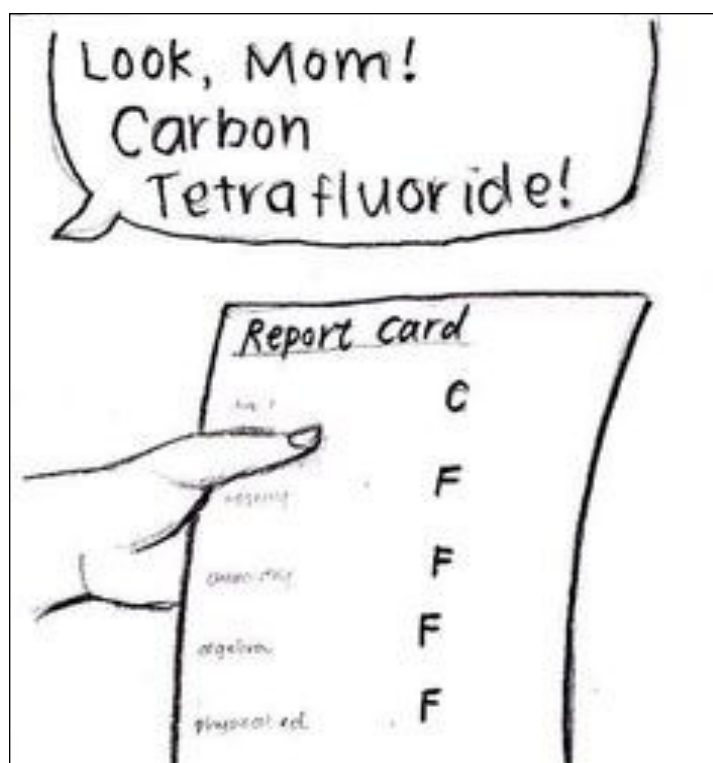
It is called "periodic" because elements are lined up in cycles or periods. From left to right elements are lined up in rows based on their atomic number (the number of protons in their nucleus). Some columns are skipped in order for elements with the same number of valence electrons to line up on the same columns. When they are lined up this way, elements in the columns have similar properties.

Each horizontal row in the table is a period. There are seven (or eight) total periods. The first one is short and only has two elements, hydrogen and helium. The sixth period has 32 elements. In each period the left most element has 1 electron in its outer shell and the right most element has a full shell.

## Groups

Groups are the columns of the periodic table. There are 18 columns or groups and different groups have different properties.

One example of a group is the noble or inert gases. These elements all line up in the eighteenth or last column of the periodic table. They all have a full outer shell of electrons, making them very stable (they tend not to react with other elements). Another example is the alkali metals which all align on the left-most column. They are all very similar in that they have only 1 electron in their outer shell and are very reactive. You can see all the groups in the table below.



This lining-up and grouping of similar elements helps chemists when working with elements. They can understand and predict how an element might react or behave in a certain situation.

## Element Abbreviations

Each element has its own name and abbreviation in the periodic table. Some of the abbreviations are easy to remember, like H for hydrogen. Some are a bit harder like Fe for iron or Au for gold. For

gold the "Au" comes from the Latin word for gold "aurum".

## Who invented it?

The periodic table was proposed by Russian chemist Dmitri Mendeleev in 1869. Using the table, Mendeleev was able to accurately predict the properties of many elements before they were actually discovered. >>>

Group →	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Period ↓																		
1	1 H																	2 He
2	3 Li	4 Be											5 B	6 C	7 N	8 O	9 F	10 Ne
3	11 Na	12 Mg											13 Al	14 Si	15 P	16 S	17 Cl	18 Ar
4	19 K	20 Ca	21 Sc	22 Ti	23 V	24 Cr	25 Mn	26 Fe	27 Co	28 Ni	29 Cu	30 Zn	31 Ga	32 Ge	33 As	34 Se	35 Br	36 Kr
5	37 Rb	38 Sr	39 Y	40 Zr	41 Nb	42 Mo	43 Tc	44 Ru	45 Rh	46 Pd	47 Ag	48 Cd	49 In	50 Sn	51 Sb	52 Te	53 I	54 Xe
6	55 Cs	56 Ba	57 La	* 72 Hf	73 Ta	74 W	75 Re	76 Os	77 Ir	78 Pt	79 Au	80 Hg	81 Tl	82 Pb	83 Bi	84 Po	85 At	86 Rn
7	87 Fr	88 Ra	89 Ac	* 104 Rf	105 Db	106 Sg	107 Bh	108 Hs	109 Mt	110 Ds	111 Rg	112 Cn	113 Nh	114 Fl	115 Mc	116 Lv	117 Ts	118 Og
				* 58 Ce	59 Pr	60 Nd	61 Pm	62 Sm	63 Eu	64 Gd	65 Tb	66 Dy	67 Ho	68 Er	69 Tm	70 Yb	71 Lu	
				* 90 Th	91 Pa	92 U	93 Np	94 Pu	95 Am	96 Cm	97 Bk	98 Cf	99 Es	100 Fm	101 Md	102 No	103 Lr	

### Fun facts about the Periodic Table

- Carbon is unique in that it is known to form up to 10 million different compounds. Carbon is important to the existence of life.
- Francium is the rarest element on earth. There are probably no more than a few ounces of it on earth at any given time.

- The only letter not in the periodic table is the letter J.
- The country Argentina is named after the element silver (symbol Ag) which is argentum in Latin.

Although there is helium on Earth, it was first discovered by observing the sun.

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 \* Message us on Facebook.





# Chem4Kids Quiz: Elements

## Question 1:

*What is the first element in the periodic table?*

Helium (He)

Hydrogen (H)

Lithium (Li)

Argon (Ar)

## Question 2:

*Oxygen (O) has a greater mass than chlorine (Cl)*

True

False

## Question 3:

*Which of these is a noble gas?*

Chlorine (Cl)

Hydrogen (H)

Neon (Ne)

Fluorine (F)

## Question 4:

*Silicon (Si) and carbon (C) share some similar characteristics.*

True

False

## Question 5:

*Which of these is NOT a gas found in the Earth's atmosphere?*

Nitrogen (N)

Oxygen (O)

Gold (Au)

Argon (Ar)

*Go to page 49 for the answers*

# Your Brain on Sugar: What the Science Actually Says

By Dr. Amy Reichelt, [www.amyreichelt.com](http://www.amyreichelt.com)

**W**e love sweet treats. But too much sugar in our diets can lead to weight gain and obesity, Type 2 diabetes and dental decay. We know we shouldn't be eating candy, ice cream, cookies, cakes and drinking sugary sodas, but sometimes they are so hard to resist.

It's as if our brain is hardwired to want these foods.

As a neuroscientist my research centres on how modern day "obesogenic," or obesity-promoting, diets change the brain. I want to understand how what we eat alters our behaviour and whether brain changes can be mitigated by other lifestyle factors.

Your body runs on sugar — glucose to be precise. Glucose comes from the Greek word *glukos* which means sweet. Glucose fuels the cells that make up our body — including brain cells (neurons).

## Dopamine "hits" from eating sugar

On an evolutionary basis, our primitive ancestors were scavengers. Sugary foods are excellent sources of energy, so we have evolved to find sweet foods particularly pleasurable. Foods with unpleasant, bitter and sour tastes can be unripe, poisonous or rotting — causing sickness. So to maximize our survival as a species, we have an innate brain system that makes us like sweet foods since they're a great source of energy to fuel our bodies.

When we eat sweet foods the brain's reward system — called the mesolimbic dopamine system — gets activated. Dopamine is a brain chemical released by neurons and can signal that an event was positive. When the reward system fires, it reinforces behaviours — making it more likely for us to carry out these actions again.

Dopamine "hits" from eating sugar promote rapid learning to preferentially find more of these foods.

Our environment today is abundant with sweet,



As a neuroscientist, Amy is fascinated with how our brains control our behaviours in our dynamic and changing world. She is an Australian Research Council Research Fellow and lecturer at RMIT University. Her research seeks to explore how the brain controls our behaviour and understanding the mechanisms by which our experiences in the environment can shape our responses to events. To watch her video "This Is Your Brain On Sugar" [www.tedxsydney.com](http://www.tedxsydney.com)

energy rich foods. We no longer have to forage for these special sugary foods — they are available everywhere. Unfortunately, our brain is still functionally very similar to our ancestors, and it really likes sugar. So what happens in the brain when we excessively consume sugar?

## Can sugar rewire the brain?

The brain continuously remodels and rewires itself through a process called neuroplasticity. This rewiring can happen in the reward system. Repeated activation of the reward pathway by drugs or by eating lots of sugary foods causes the brain to adapt to frequent stimulation, leading to a sort of tolerance.

In the case of sweet foods, this means we need to eat more to get the same rewarding feeling — a classic feature of addiction.

Food addiction is a controversial subject among >>>



scientists and clinicians. While it is true that you can become physically dependent on certain drugs, it is debated whether you can be addicted to food when you need it for basic survival.

### **The brain wants sugar, then more sugar**

Regardless of our need for food to power our bodies, many people experience food cravings, particularly when stressed, hungry or just faced with an alluring display of cakes in a coffee shop.

To resist cravings, we need to inhibit our natural response to indulge in these tasty foods. A network of inhibitory neurons is critical for controlling behaviour. These neurons are concentrated in the prefrontal cortex — a key area of the brain involved in decision-making, impulse control and delaying gratification.

Inhibitory neurons are like the brain's brakes and release the chemical GABA. Research in rats has shown that eating high-sugar diets can alter the inhibitory neurons. The sugar-fed rats were also less able to control their behaviour and make decisions.

Importantly, this shows that what we eat can influence our ability to resist temptations and may underlie why diet changes are so difficult for people.

A recent study asked people to rate how much they wanted to eat high-calorie snack foods when they were feeling hungry versus when they had recently eaten. The people who regularly ate a high-fat, high-sugar diet rated their cravings for snack foods higher even when they weren't hungry.

This suggests that regularly eating high-sugar foods could amplify cravings — creating a vicious circle of wanting more and more of these foods.

### **Sugar can disrupt memory formation**

Another brain area affected by high sugar diets is the hippocampus — a key memory centre.

Research shows that rats eating high-sugar diets were less able to remember whether they had previously seen objects in specific locations before.

The sugar-induced changes in the hippocampus were both a reduction of newborn neurons, which are vital for encoding memories, and an increase in chemicals linked to inflammation.

### **How to protect your brain from sugar?**

The World Health Organization advises that we limit our intake of added sugars to five per cent of our daily calorie intake, which is 25g (six teaspoons).

Considering the average Canadian adult consumes 85g (20 teaspoons) of sugar per day, this is a big diet change for many.

Importantly, the brain's neuroplasticity capabilities allow it to reset to an extent following cutting down on dietary sugar, and physical exercise can augment this process. Foods rich in omega-3 fats (found in fish oil, nuts and seeds) are also neuroprotective and can boost brain chemicals needed to form new neurons.

While it's not easy to break habits like always eating dessert or making your coffee a double-double, your brain will thank you for making positive steps. The first step is often the hardest. These diet changes can often get easier along the way.

■ ■ ■

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Regularly eating high-sugar foods can amplify cravings.  
(Shutterstock)



3D illustration of neurons in human brain. (Shutterstock)



In her YouTube video "How does the brain make new memories?" Dr Amy Reichelt, Lecturer in Psychology, School of Health and Biomedical Sciences, explains how the brain makes new memories. [https://youtu.be/Yw\\_PgdUrq9s](https://youtu.be/Yw_PgdUrq9s)

Or watch her video; <https://tedxsydney.com/talk/this-is-your-brain-on-sugar-amy-reichelt/>



## 30 Illusion Cakes by the BakeKing That Are Too Good To Eat

By Hidréléy Diao, [www.boredpanda.com](http://www.boredpanda.com)

There are plenty of posts about confectionery on **Bored Panda**, as there's a massive demand for sweet news. Some use cakes as a part of some imagined situation, some are in it for the art itself or creative choices, and some create cakes that are just plain creepy. No matter the preference, in baking, like in real cake, there are layers of hierarchy: only a select few become the *creme de la creme*, cream of the crop, top of the food chain, the icing on the cake.

Ben Cullen, 28, is one of them. His cakes have a stunning range—from something that looks like it came from a fast-food diner to edible clothes, to stylized-yet-lifelike busts, to stabs at horror movies, to vegetables and optical illusions—he can do it all, it seems. And it messes with your brain, too!

Some things look better on the outside than on the inside, and some the other way around. Some things seem so delicious that you don't care what they'd actually taste like, and some you wouldn't approach from miles away (they're still probably delicious, though.) In any case, check his works out and see for yourself.

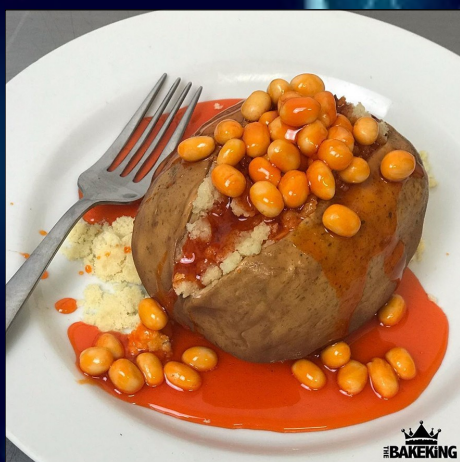
If you felt a sugar rush and you're hooked, check out his Instagram and Facebook to see even more. Who knew that the term "eye candy" could be so figuratively literal? Have a nice one.

■ ■ ■

To view more amazing pictures of these delicious food art illusions, surf to [www.boredpanda.com](http://www.boredpanda.com)











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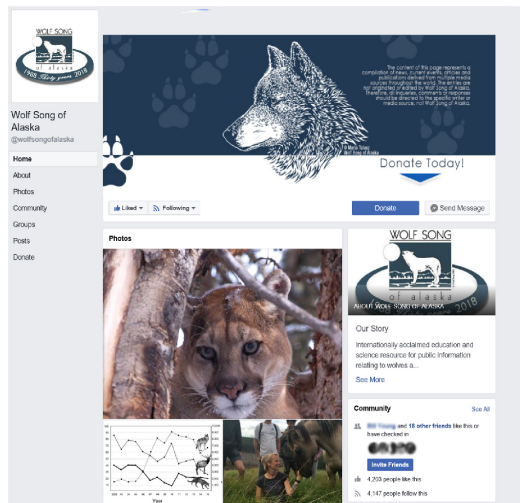


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Wolf Song of Alaska  
P.O. Box 770950, Eagle River AK 99577-0950  
E-mail us at: [wolfsong@wildwolves.org](mailto:wolfsong@wildwolves.org)  
Phone: 1-907-622-9653

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# The First Sweets - Who Invented First Candy

By Candy History, [www.candyhistory.net](http://www.candyhistory.net)

**C**ave man made candy out of honey by drying it and forming a taffy-like concoction to satisfy their sweet tooth. It is believed that Indians were the first to use the sweet juice of sugarcane about 3000 years ago and that they were the first to make brown sugar.

Candy can be traced back as far as 2000BC to the ancient Egypt and it could be said that Egyptians were the first people who made candy. In ancient Egypt candy was used in ceremonies for worshipping their gods and goddesses. The Egyptians used honey to make candy by adding figs, nuts, dates and spices. Around the same time, Greeks used honey to make candied fruits, stems and flowers and they discovered how to make syrup out of figs and dates. The Romans and Chinese made barley sugar candies with honey that were heated or cooked in an oven.

Other forms of candy were slowly developed in other parts of the world. The spread of sugarcane, over the next few centuries, would have a major impact especially on the confectionary habits of China. In order to make new confections, the Chinese sweetened all their traditional favorites including ginger, licorice root and nuts with sugar. By the 950 A.D Arabs had invented caramel, which was originally used for hair. They built the first sugar refinery in the world. The Indians were the first to make sugar candy about 250 A.D.

In the 14th century, Venetians began to import sugar to make candy.



During the middle Ages, sugar candies became very popular. The candy was categorized and sold as a drug. Candies were exclusively for the wealthy people as sugar was very expensive. Aside from sugar, candy was also made by combining sugar and honey with nuts. Fruit candies were made by combining fruits with sugar and sweets.

Cacao was invented in Mexico in 1519 and was brought back to Europe by the Spaniards in the country who uncovered it. But, it is recorded that Mayan people were growing cacao as early as 1200BC, but according to the new evidence cacao may have been cultivated even before that.

In the 14th century, "chocolatl", usually served in liquid form, was a favorite treat of the Aztecs. Christopher Columbus brought cocoa beans to Europe.

The invention of rock candy, also called sugar cane, happened in the 18th century and was used as a medicine, at first. During this time mass production of candy began to be introduced, as sugar got cheaper and machines got more efficient.

■ ■ ■

This article was first published on the website of Candy History, [www.candyhistory.net](http://www.candyhistory.net)



# La Pinata



## Religious Symbolism

### What is the symbolic meaning of the pinata?

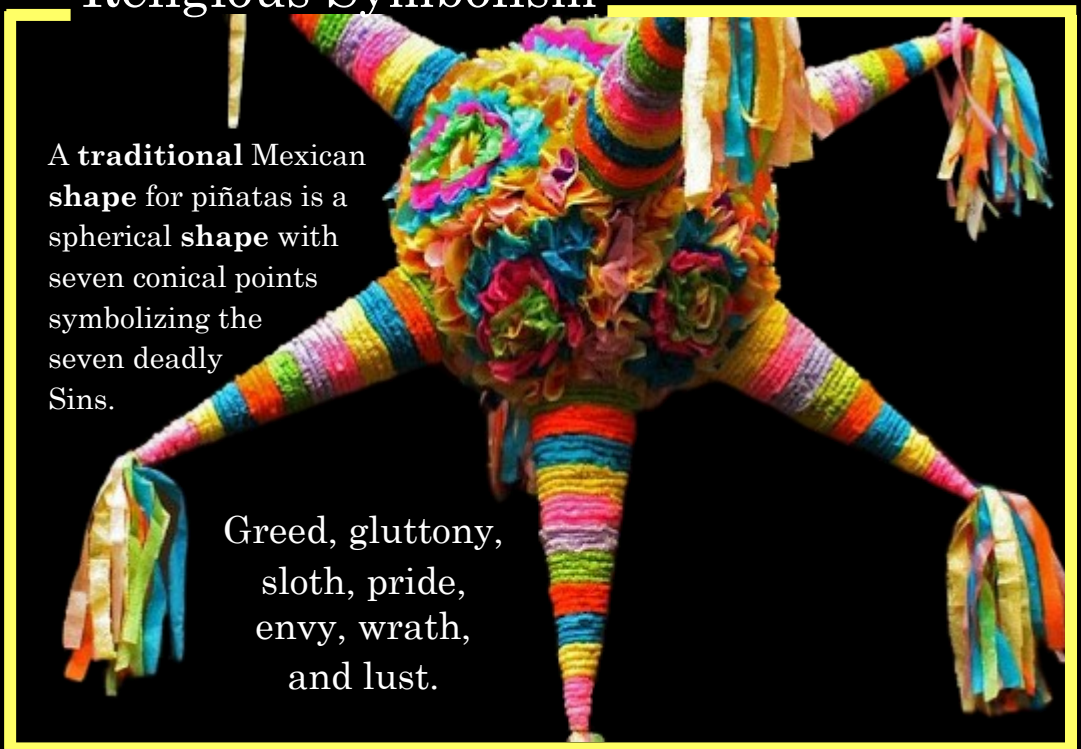
The Mexican Catholic interpretation of the piñata rested on the struggle of man against temptation. The seven points represent the seven deadly sins. The pot represents evil and the seasonal fruit and candy inside the temptations of evil. The person with the stick is blindfolded to represent faith.

### Why is a pinata a donkey?

They gather for parties where lots of food and piñatas are the focal points. Traditional shapes for piñatas on this day are donkeys, for the donkey that carried the Virgin Mary, fish, symbolizing Christ, and also birds to represent those that sang when Mary appeared to Juan Diego.

A **traditional Mexican shape** for piñatas is a **spherical shape** with seven conical points symbolizing the seven deadly Sins.

Greed, gluttony,  
sloth, pride,  
envy, wrath,  
and lust.



### Where is the pinata from originally?

Piñatas may have originated in China, being brought to Italy by Marco Polo when he travelled there in the 13th century. Figures of animals such as cows, oxen or buffaloes were covered with colored paper and adorned with ribbons for the new year.

### What is inside a pinata?

Candy is considered the customary piñata stuffing, so you can't really go without it. If you do, you may look like a scrooge. Smarties, pixie sticks, and licorice all work well for piñata filler ideas. But if you're a purist, chocolate is the "healthiest" candy option.

*Ask an adult to help you cut out the puzzle.*





# 25 Kids From Around the World Photographed With What They Eat In One Week

By Rokas Laurinavičius and Ilona Baliūnaitė, [www.boredpanda.com](http://www.boredpanda.com)



**Kawakanih Yawalapiti, 9, Upper Xingu region of Mato Grosso, Brazil,** photographed August 19, 2018 in Brasilia. Kawakanih, a member of the Yawalapiti tribe, lives in Xingu National Park, a preserve in the Amazonian Basin of Brazil. When she was born, Kawakanih's mother, Watatakalu, isolated her from those who didn't speak Arawaki, their native language. Only 7 speakers of the language remained and her mother was afraid Arawaki would go extinct. In fact, Kawakanih is the first child to be raised speaking Arawaki since the 1940's and her mother says it's up to Kawakanih and her two siblings to keep the language alive.

Kawakanih has also learned her father's dialect as well as Portuguese. She loves to read history books, especially ones about the Egyptians. Most of her days are spent playing in the river or helping with chores, like harvesting manioc (cassava), making tapioca and fishing. Every couple of months, Kawakanih travels to Canarana for school where she learns computer skills, though no one in her village owns a computer; there is no electricity or running water. The red paint Kawakanih wears, traditionally made from ground urucum seeds, protects her from bad spirits and energy.

**Greta Moeller, Hamburg, Germany, 7,** photographed August 11, 2017 Greta lives with her mother and younger sister in Hamburg, but spends quite a bit of time with her grand-parents, too. On the path to her grandparents home is a great big chestnut tree and in autumn, Greta searches in the foliage for chestnuts with her little sister.

Greta's favorite food is fish sticks with mashed potatoes and applesauce. She can't stand rice pudding. One thing Greta is really good at is snapping her fingers, both hands at the same time. At night, while falling asleep, Greta thinks mostly about her mother, who is usually in the next room watching TV.







**Rosalie Durand, 10, Nice, France,** photographed August 18, 2017. Since her parents split up, Rosalie has lived part time with her mom, and part time with her dad, which allows her to see both the Mediterranean Sea and the French Alps from home. She has a healthy diet (which includes lots of fresh fish, like sardines) thanks in part to her father, a restaurateur, who has taught her to make crepes, salads and lentils with sausage, her favorite dish.

The only foods she won't eat are ratatouille, spinach and cucumber. Rosalie gets her sense of style from her mother, a fashion designer, and plans to be an interior designer. Rosalie is into Thai kickboxing, rock climbing, gymnastics and performs magic tricks. She's a fan of actors Cole Sprouse and Emma Watson and in her free time goes to the cinema. She notices she's getting older because she has a phone.

There's nothing missing in Rosalie's life, though she'd like to go to Los Angeles and explore Hollywood Boulevard. If she had enough money, she'd buy a sailboat or maybe even a yacht.

**Meissa Ndiaye, 11, Dakar, Senegal,** photographed August 30, 2017. Meissa shares a single room with his dad, mum and brother in the heart of Parcelles Assainies, which means "sanitized plots." A treeless, sandy suburb of Dakar, Parcelles Assainies was developed in the 1970's to house the poor overflowing from the city. Meissa lives opposite the futbol stadium and open-air market, hundreds of stalls selling everything from fresh fish to wedding dresses.

In late August, tethered goats line the streets before Eid al-Adha, the Feast of the Sacrifice. Meissa, a devout Muslim and student at Quran School, loves goat meat and sweet foods like porridge, though in the week he kept a diary of his meals, he ate very little meat. More often, he filled up on French bread stuffed with spaghetti, peas or fried potatoes. Meissa's mum and anties prepare his meals though once or twice a week they get take out. Meissa loves futbol most of all and hopes to be a star player like Messi or Ronaldo.

If he had enough money, he'd buy a nice little sports car. He wishes his mum and dad, a refrigerator technician, could immigrate to France so that they can earn enough money.





# At The Dentist

## Were there dentists in the 1800s?

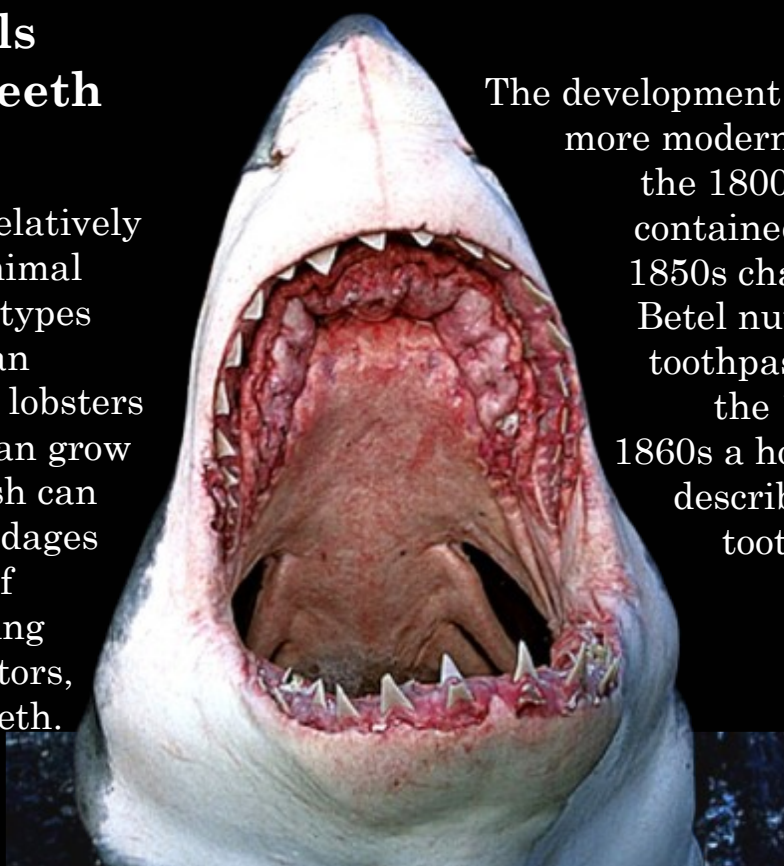
In 1879 dentists had no need a license to practice. Anyone who had pliers, a chair with arm straps to hold the patient down, and a wooden mallet, for use when necessary, could practice dentistry. Few people had teeth pulled back then.

## Why is a dentist called a dentist?

A dentist, also known as a dental surgeon, is a surgeon who specializes in dentistry, the diagnosis, prevention, and treatment of diseases and conditions of the oral cavity. The dentist's supporting team aids in providing oral health services.

## What animals grow their teeth back?

Regeneration is relatively common in the animal kingdom, certain types of salamanders can regenerate limbs, lobsters and stone crabs can grow new claws, starfish can grow new appendages and many types of predators, including sharks and alligators, can regenerate teeth.



## Did they brush their teeth in the 1800s?

The development of toothpastes in more modern times started in the 1800s. Early versions contained soap and in the 1850s chalk was included. Betel nut was included in toothpaste in England in the 1800s, and in the 1860s a home encyclopedia described a home-made toothpaste that used ground charcoal.

## Who was the first dentist ever?

2600 BC. Death of Hesy-Re, an Egyptian scribe, often called the first 'dentist'. An inscription on his tomb includes the title "the greatest of those who deal with teeth, and of physicians." This is the earliest known reference to a person identified as a dental practitioner.







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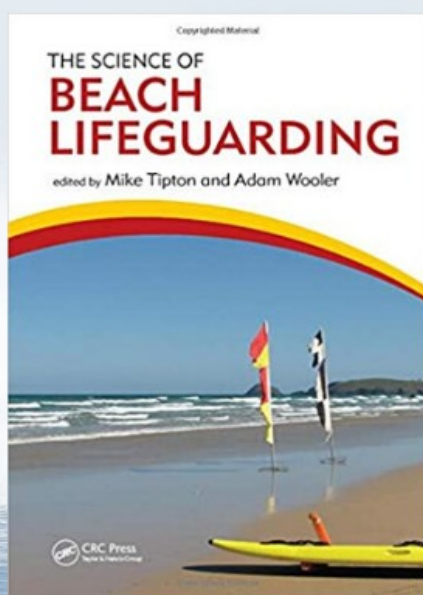
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# Rock Candy Experiment

**Making rock candy is really easy and lots of fun.**

**This activity is a beautiful science experiment and a yummy treat all in one. Follow this easy tutorial to conduct your own rock candy experiment.**

## Preparing the Skewers

Begin by soaking the bamboo skewers in a container of water. Leave them to soak for at least one hour. Remove the skewers from the water and then coat the bottom half in sugar

### Materials (per rock candy color)

- 2-3 cups of sugar
- 1 cup of water
- Skewers
- A jar or glass
- A large saucepan
- Clothespins

### Optional additions:

- Food coloring
- Candy flavoring

*Note:* You can easily double and triple the above **recipe**.

We wanted to ***make a rainbow of rock candy*** colors, so we ended up using **10 cups** of water and close to **30 cups** of sugar.

**As long as the sugar to water ratio is close to 3:1 the rock candy will grow.**

## Method

Combine equal parts of sugar and water in a saucepan and heat until all of the sugar is dissolved. Then, slowly add more sugar and mix, ***slowly adding more sugar and mixing*** until the sugar will no longer dissolve in the water.

The water should start to look ***a little cloudy***. That is when you know that no more sugar is dissolving and the perfect sugar-saturation has been reached. The short version is that you are creating a saturated sugar solution, or a solution in which no more sugar can dissolve at a particular temperature.

The amount of sugar verses water used should be ***roughly 3:1***. You can easily double & triple the recipe as long as you maintain a 3:1 ratio. Add candy flavoring if desired, and then continue to heat the water until it comes to a simmer. Remove the sugar-water from the heat and allow it to cool.

## Preparing the Candy Sticks

Cut the skewers to a desirable size for the jar(s) that you are using. Then, dip the sticks in water and roll them in sugar. Set the sugar-coated sticks aside and allow them to dry. >>>





## Prepping the Jars

Once your sugar-water is cool enough pour it into jars, using one jar for each color of rock candy that you wish to make. Once the sticks are dry carefully place them into the jar(s).

- You want to make sure that the sugar-coated sticks are *completely dry* before placing them in the jars.
- The rock candy needs the sugar on the sticks to grow, and if the sugar isn't dry it will dissolve in the water.
- It is also *important* to make sure that the sticks are not touching the bottom or sides of the jar.

## The Experiment

It is now time to sit back and observe the jars! Rosie and Jewel loved checking on their jars each day. This is what our rock candy looked like after just one day.

After day three we could really see growth! By day 5 my girls were dying to actually eat rock candy, haha. But, this was a great lesson in patience.

After a week our **rock candy** was almost ready! Just look at those beautiful jars!

### Why does the string need to be soaked and then dried?

The string will provide the surface on which the crystals will grow. As water evaporates from the string, small crystals of sugar will encrust the string. These tiny *seed crystals* provide starting points for larger crystals.

Future growth will be concentrated around these points.

### What makes the crystals grow?

Two different methods will contribute to the growth of the crystals on the string. You have created a *supersaturated* solution by first heating a *saturated* sugar solution (a solution in which no more sugar can dissolve at a particular temperature) and then allowing it to cool. A supersaturated solution is unstable—it contains more *solute* (in this case, sugar) than can stay in a liquid form—so the sugar will come out of solution, forming what's called a *precipitate*. This method is called *precipitation*.

The other is *evaporation*—as time passes, the water will evaporate slowly from the solution. As the water evaporates, the solution becomes more saturated and sugar molecules will continue to come out of the solution and collect on the seed crystals on the string. The rock candy crystals grow molecule by molecule. Your finished rock candy will be made up of about a quadrillion (1,000,000,000,000,000) molecules attached to the string.



## Enjoying Your Rock candy

After a week your rock candy can be removed from the jars and enjoyed. You can extend the fun and *grow your rock candy* longer if desired.

Once you and the kids are ready remove the candy sticks from the jar(s), and then place them on a clean surface to dry. Once dry you will have a yummy treat to enjoy!



Invitation to the Final Presentation and Special Note  
in Ecothon Cambodia in 2019

# "SEEING STARS IN THE SKY, CARING FOR THE EARTH"

**Sunghee Lee**

CEO(Founder), CONTEC Co., Ltd.

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**VENUE** Raffles Hotel Le Royal

**DATE** Sep 18 (Thu)

**TIME** (14:30-16:00) Final Presentation of Idea Competition  
(16:30-18:00) Special Note : Sunghee Lee, Founder, CONTEC Co., Ltd





## Paul

Two comic book buffs take a road trip to Area 51, where they run into an alien. With federal agents in pursuit, the two inept geeks must quickly find a way to return the alien to his spaceship.



## Despicable Me 3

Gru meets his long-lost twin brother Dru, after getting fired from the Anti-Villain League. However, the siblings find themselves at loggerheads with a child actor-turned-villain.



## Hop

Fred, who's never taken life seriously, unintentionally injures the Easter Bunny and is forced to take him in as a house guest. As both struggle to deal with the situation, they also learn to grow up.



## Aliens In The Attic

While holidaying with their families, six children discover that their vacation home is riddled with aliens who intend to conquer Earth using a mind-control weapon.



## Charlie and the Chocolate Factory

Charlie, a young boy from an impoverished family, and four other kids win a tour of an amazing chocolate factory run by an imaginative chocolatier, Willy Wonka, and his staff of Oompa-Loompas.

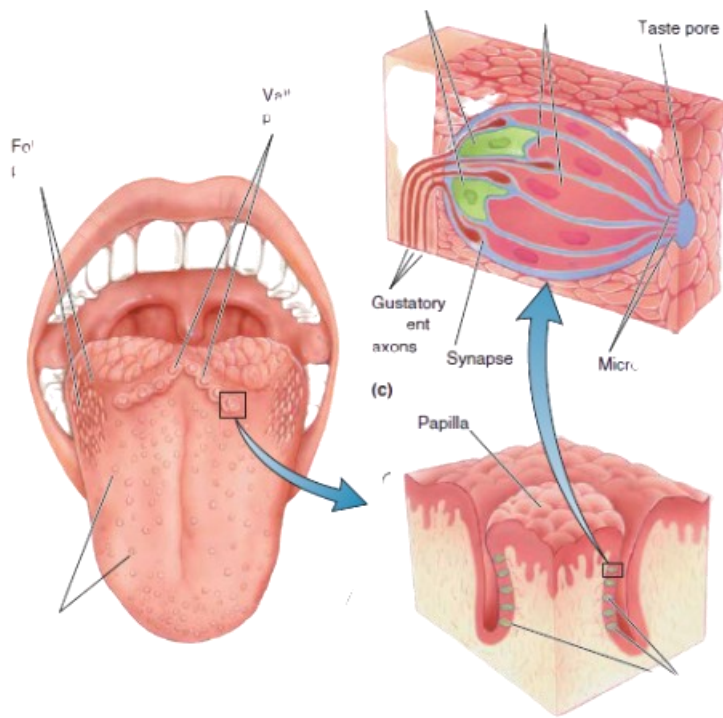


## The Wizard of Oz

When a tornado rips through Kansas, Dorothy and her dog, Toto, are whisked away in their house to the magical land of Oz. They follow the Yellow Brick Road toward the Emerald City to meet the Wizard, and en route they meet a Scarecrow that needs a brain, a Tin Man missing a heart, and a Cowardly Lion who wants courage. The wizard asks the group to bring him the broom of the Wicked Witch of the West to earn his help.







## A preference for sweet

Many scientists think that our individual taste preferences are determined when we are young and perhaps even when we were still in the womb. Studies on 13-week-old fetuses show that they swallow extra amniotic fluid when it is sweet. At birth, our sense of taste is already more developed than our eyesight and we recognize many smells before we can talk or walk. We instinctively refuse bitter or sour because it can be toxic or dangerous.

Most people have a sweet tooth all their lives. This is also evident from the fact that many people prefer to eat fruit over vegetables.

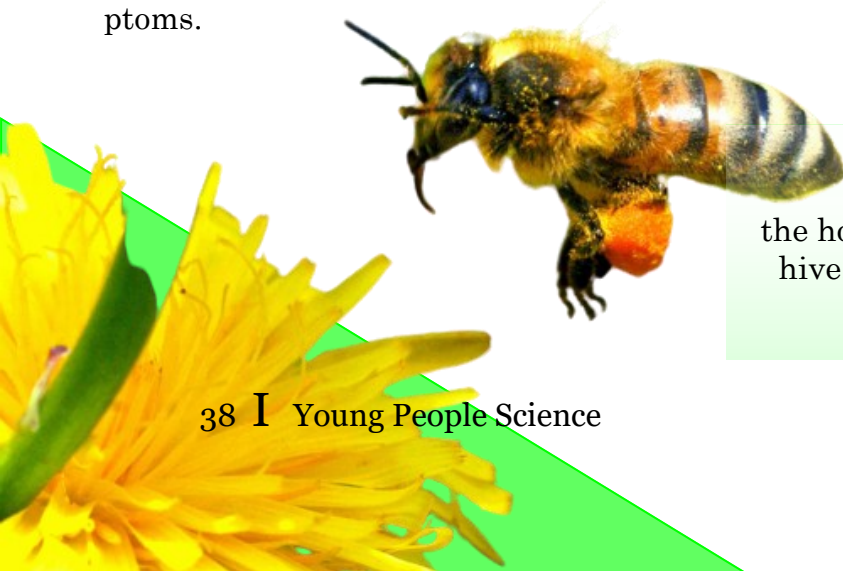
Our sense of smell also seems to follow a specially pre-programmed pattern.

Babies have a fully developed sense of smell but show no aversion to unpleasant odors and experience no pleasure when something smells nice. At the age of 8, however, a child appears to have developed the same odor preferences as most adults.

## Addicted to sugar?

Is sugar more addictive than cocaine? According to a research project with rats, 96% preferred sugar water to cocaine. Even rats already addicted to cocaine lose sugar.

In humans, the term 'sugar addiction' is used for an excessive sugar craving, often when we feel depressed. Studies show that depression leads to a sugar craving because it increases the amount of the neurotransmitter serotonin, which improves your mood. Most nutritionists reject the idea that people become addicted to sugar in the same way as, for example, to nicotine. The question is whether you suffer from withdrawal symptoms.



Bees just really love honey, and they'll go to any length to get it. Sometimes, when the honey production is running low in their own hive, they'll decide to steal honey from a nearby competing colony.





## **Dogs Have Self-Cleaning Mouths**

In a way, dogs make their own toothpaste. Dog saliva has a very high pH level, making it incredibly basic. This pH level dulls acidity of foods they eat, keeping it from wearing down their teeth. They also avoid plaque-building bacteria thanks to antibacterial chemicals in their saliva.

Still, with the high amount of sugar domesticated dogs eat, you should have your pet dog's teeth examined when you take them to the vet.



# The History of Dentistry

## We've Been at This a Long Time (Nearly 9,000 Years!)

Archaeologists and historians working in the Indus Valley (what is now Pakistan) have found evidence of early dental healthcare dating back to around 7000 BCE. They've excavated skeletons with precisely drilled holes in their teeth.



The fact that those teeth were discovered still in their jawbones indicates that this historical method of removing decay was successful.

For thousands of years, people assumed that cavities and tooth decay were caused by "tooth worms". The oldest mention of these comes from an ancient Mesopotamian text dating to around 5000 BCE, but this theory persisted well into the 18th century.

People have used different tools throughout history as "toothbrushes." These toothbrushes include sticks, bird feathers, and porcupine quills!

Dentistry advanced significantly in ancient Egypt. Mummies with fillings and crowns made of various materials (like resin and stone) have been discovered there. It's also where the first dentist,

Hesy-Re, lived, in around 2600 BCE. Not surprisingly, the Egyptians are credited with developing a rudimentary form of toothpaste nearly 5,000 years ago!

By around 700 BCE, dentistry was a common practice. The ancient Greeks and Etruscans all developed technology specific to dental surgery, like extraction tools and bridges made of gold wire and carved animal teeth. Ancient Romans were believed to use a toothpaste made from honey and eggshells.

## Do ladybugs bite?

The better question is, "Can they bite?" Ladybugs feed on soft bodied insects because they don't have teeth (which would make them very frightening).

However, like other beetles they do have mandibles or chewing mouth parts.



## Dentistry and More in the Barber's Chair

In the 1400s, the Chinese invented a toothbrush made from bamboo and pig bristles, very similar to our modern toothbrush. Around the same time, the Barber Surgeon Guild emerged across Europe. A visit to the barber could result in a shave, a haircut, a bleeding by leeches, or a tooth-pulling! These historical dentists also developed advances in restorative dentistry that lasted for hundreds of years. False teeth made from bone, ivory, and even other human teeth were common.

Of course, this was also the era when people rinsed their mouths with a concoction of dogs' teeth boiled in wine to ward off the tooth worms, so, they still had much to learn...



**Not everybody can get  
an appointment at the  
dentists ;)**

## A Scientific Approach

In 1728, Pierre Fauchard published a scientific text about dental treatments and became known as the Father of Modern Dentistry. In the Age of Enlightenment, dentistry became a recognized profession. New dental materials and discoveries allowed for more hygienic practices. Porcelain dentures also became standard (no more using the teeth of the recently deceased!).

Around this time, universities began to open specialized dental schools. Also, a visit to the dentist was made easier with the adoption of nitrous oxide (laughing gas) as an anesthetic. "Dental Creams" (toothpaste) became available to the general public. The invention of the impression compound and other applications of synthetics like rubber denture bases ushered the profession into the 20th century.

In the 1930s, modern toothbrushes with nylon bristles (not the historical pig's hair!) and more effective, better-tasting toothpastes were standard. New research about bacteria meant that the average citizen knew the importance of a healthy mouth. With advances in general medicine, radiology, and surgery, modern dentistry made rapid progress.



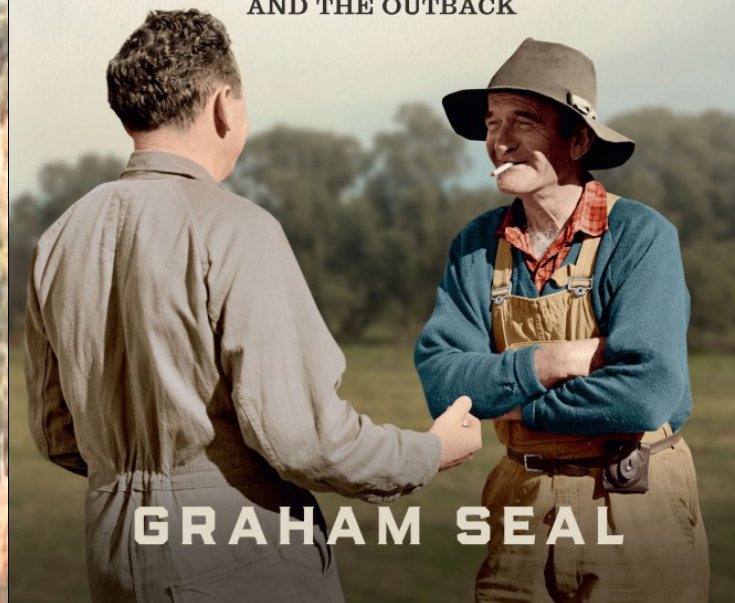


**'Graham Seal has the knack of the storyteller'**

**Warren Fahey AM**

# *Australia's* **FUNNIEST YARNS**

**TRADITIONAL HUMOUR FROM THE BUSH  
AND THE OUTBACK**



Australians traditionally like their humour irreverent, crude and with very sharp teeth.

Perhaps you've heard of the vicious drop bears that fall on unsuspecting tourists as they walk through the bush? Or the hoop snakes that put their tails in their mouths as they roll down the hill towards you? Or how about the Citizenship Test for Aspiring Australians which begins with this question about an essential life skill: 'How many slabs can you fit in the back of a Falcon ute while also allowing room for your cattle dog?'

The bush is the source of traditional Aussie humour. Pioneering, settlement and battling fire, flood and drought have produced yarns of tough cocky farmers, shearers, bush workers, swaggies and dreadful cooks. Much of this humour relates to the resilience and fortitude necessary to endure the realities of rural life. Australians took this sensibility with them to war and to work in the cities, and the tradition continues today.

Whatever the circumstances, Australians have always found something to laugh about, laugh at or laugh off.

**[www.allenandunwin.com](http://www.allenandunwin.com)**



# Why Do You Always Have Room for Dessert?

By Shahram Heshmat Ph.D. [www.uis.edu](http://www.uis.edu)

One of the key factors that contribute to how much we eat is the variety of different foods available. When people eat the same food during a meal they become habituated and decrease their consumption. However, when presented with a variety of foods during meals the amount consumed increases. Research consistently shows that exposure to a variety of foods results in overeating and weight gain. Thus, an understanding of the effect of variety on eating and satiety may be helpful for weight-loss intervention (Johnson & Wardle, 2014).

Habituation (getting sick of things) is a decrease in response to a specific stimulus after repeated exposures. (Raynor and Epstein, 2001). Although people may find it particularly enjoyable when they initially start eating, but the extra pleasure wears off. People describe habituation as the food no longer tasting good, or being tired of eating. Habituation is a mechanism for termination of eating.

Habituation theory suggests that the presentation of a novel food can delay satiation. Varied foods act as novel stimuli. That is, we tend lose interest in a specific flavor, but remain interested longer when flavors keep changing (e.g., consuming chocolate brownies with vanilla ice cream).

The variety effect has been attributed to sensory-specific satiety. The term sensory specific satiety is defined as a decrease in appetite for the food that is eaten relative to non-consumed foods that have different sensory qualities, such as taste, texture, and appearance (Rolls et al., 1982). For example, a salad, followed by an entrée of meat, followed by a dish of ice cream. A greater variety of food leads people to eat more than they would otherwise.

In an experiment where people were offered different varieties of sandwiches in sequence, they consumed 15 percent more calories than those who were repeatedly offered the same one.

The sensory-specific satiety explains why we always seem to have room for dessert even when



Dr. Heshmat Ph.D. passion is to make economic education relevant and interdisciplinary for non-majors and to reach a broader audience. [www.uis.edu](http://www.uis.edu)

we feel completely full from the main course. In part, it is because the dessert is the only part of the meal that we haven't tasted. Desserts offer sensory qualities quite different from the main course (sweet vs. savory). So, being full and feeling sated are separate matters.

The variety effect explains why everyone overeats at an all-you-can-eat-buffet. In addition, sunk cost (advance charge for the meal) is a motivation factor to get one's money's worth. The price of another helping is exactly zero (Just and Wansink, 2011). Consequently, a buffet customer will overeat beyond the point of fullness.

From an evolutionary perspective, the motivation to seek out food variety has the clear advantage of helping to obtain a sufficiently wide variety of nutrients that are needed for healthy living (Epstein, et al., 2009). But behavior that was adaptive in conditions of food scarcity can be a risk for overeating in an environment filled with varied energy-dense foods (e.g., several flavors of salty snacks, cookies, candies, ice cream, and sodas). >>>

Read further on page 47



## Foods People Eat When Climbing (And Trying To Survive) Mount Everest

By: Pauline Lacsamana, [www.paulinelacsamana.com](http://www.paulinelacsamana.com)

**E**very year, hundreds of people attempt to climb Mount Everest. But with the rise in popularity of adventure tourism, the climb up the almost 30,000-foot mountain has become even more deadly. In 2019, there have been 11 deaths during the Everest climbing season, Reuters reported.

According to mountaineer Nick Hollis, the deadliest Mount Everest climbing season since 2015 is due to “incompetent climbers” moving slowly through the route, causing bottlenecks to form and longer delays.

With Mount Everest becoming more popular than ever, on top of extreme weather, it's crucial for climbers to be as prepared as they can possibly be before taking on the hike that takes approximately two months to complete.

Throughout those two months, it's not uncommon for hikers to lose up to 20 pounds from the intense climb. In addition to being physically demanding, hikers at higher altitudes experience loss of appetite, which makes what they eat key for survival. Thinking of tackling the beast that is summing Mount Everest yourself?

**Here are some foods experienced climbers have packed and eaten to make it all the way to the top.**

Photo credit: iStock/  
Daniel Prudek,  
[www.scitecheuropa.eu](http://www.scitecheuropa.eu)

### 1. Dried Reindeer Heart

Don't go running to your nearest grocery store yet.

Reindeer heart isn't for everyone, but freeze-dried and dehydrated food, in general, is key to climbing any mountain as strenuous as Mount Everest. Professional adventurer Randi Skaug was the first Norwegian woman to climb the Seven Summits, Vice reported.

One of Skaug's usual mountain climbing meals just so happens to be dried reindeer heart, which she says contains 80 % protein.

It might sound extreme, but according to Skaug, it tastes like nuts.







## 2. Olive Oil

Now, don't go chugging bottles of olive oil to prepare for a climb.

It's a great addition for quick snacks and meals during your hike. "You could add it to anything and make it taste better," photography Cory Richards told Bon Appétit. Which is a trick that can be especially handy, since altitude can change the way food tastes. If you need some food inspo, Ballinger suggests drenching Spam in olive oil. In other words, a bit of olive oil makes everything better.

## 3. Mackerel in Tomato Sauce

Again, not necessarily an essential when hiking, but seasoned hiker Randi Skaug swears by this combination — especially during one of her Everest climbs.

Mackerel in tomato sauce comes in a package-ready tin can and is loaded with fat and protein. During a climb, Skaug trekked through awful weather only to spend 10 minutes at the peak, after taking 12 hours to get to the summit, and then had to spend 10 hours getting back down.

Throughout that time, Skaug relied on her tin can superfood, one piece of chocolate, and half a liter of water.



#### 4. Nuts

Nuts (specifically almonds) are great for snacking on during a climb.

Most nuts are generally healthy because they contain polyunsaturated fats and monounsaturated fats that help lower blood pressure and cholesterol. They're also rich in fiber, vitamins, minerals, and protein. In an interview with USA Today's For The Win, mountain climber Adrian Ballinger said he had to completely change his diet to focus on fats and proteins.

Since nuts are chock-full of them, Ballinger brings plenty during his climbs.

#### 6. Coffee

Have you ever tried making a cup of coffee in freezing weather?

It's not easy, but it can be totally worth it when you need the extra energy and something to warm up your bones. It might not be the hot cup of joe that you're used to. But coffee is coffee, right?

According to mountain guide company Alpenglow Expeditions, the caffeinated drink is one of the guide favorites when climbing Mount Everest. We can imagine why.

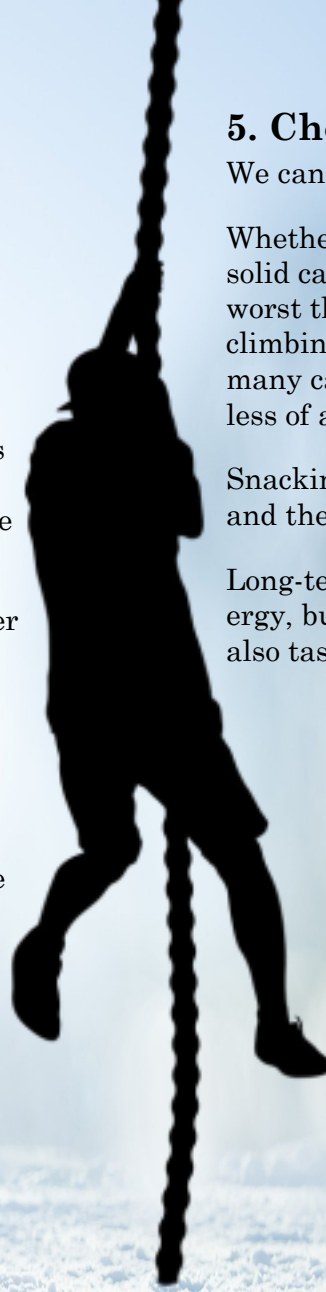
#### 5. Chocolate

We can really get on board with this one.

Whether it's a cup of hot chocolate or a solid candy bar, a little sugar isn't the worst thing to eat when hiking. When climbing Mount Everest, you're burning so many calories, but the higher you go, the less of an appetite you'll have.

Snacking on a bit of chocolate every now and then can keep the calories coming.

Long-term, it's not the best source of energy, but it still does the trick. And it's also tasty AF.





If variety increases intake of less healthy foods, it may also increase intake of healthier foods. Children provided a variety of healthier foods increased energy intake for health foods.

Overweight people who enter weight control programs are more successful if they reduce the variety of high en-

Thus, it may be possible to take advantage of food variety to improve healthy eating while simultaneously reducing access to a variety of less healthy alternatives.

■ ■ ■

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## Some of the most loved dessert in the world;

**Pasteis de Nata** - Custard Tarts from Portugal.

**Tiramisu** - Coffee Flavoured Dessert from Italy.

**Gulab Jamun** - Deep-fried sweets from India.

**S'mores** - a campfire treat from USA.

**Churros** - deep-fried dough sticks from Spain.

**Lamingtons** - square sponge cakes from Australia.



## Can tigers eat ice cream?

Tigers eat ice-cream for birthday. MOST seven-year-olds get excited by the idea of eating ice-cream, and Australia Zoo proved that their Sumatran Tigers are no exception.

*Photo credit: Australia Zoo.*



## Why gulab jamun is called gulab jamun?

Gulab jamuns (translated very roughly as 'rose-fruits') may have got their name from the fact that they are jamun (an Indian fruit) shaped, round, and usually soaked in a rosewater scented syrup. Essentially, deep fried balls made of milk powder, flour, butter and cream or milk, and then soaked in sugar syrup.





# Chem4Kids Quiz: Answers

## *Answer 1:*

Hydrogen (H) is the first element in the periodic table. It has only one electron and one proton. It is also the most abundant element in the Universe. It is one of the main elements of the Sun and the atmosphere of Jupiter. You will find it in the upper left of the periodic table.

## *Answer 2:*

Look at the periodic table. Oxygen (O) is above and to the left of chlorine (Cl). That location shows that it is lighter and has a lower atomic number. Oxygen has a mass of about 16 amu and chlorine is about 35 amu. Generally, the atomic mass of elements increases as you move to the right and down the table. For example, elements such as gold (Au) and silver (Ag) both have a greater atomic mass than aluminum (Al).

## *Answer 3:*

The far right column of the periodic table is the home of the noble gases.

Of the choices, only neon (Ne) is located in that column. Noble gases are also known as inert gases and generally have no color or odor. The family includes helium (He), neon (Ne), argon (Ar), krypton (Kr), xenon (Xe) and radon (Ra).

## *Answer 4:*

It is not as if silicon (Si) and carbon (C) are the same element, but they do share characteristics. They both like to make four bonds and they are both located in the same column of the periodic table. Other elements in this column are germanium (Ge), tin (Sn), and lead (Pb), but they are not as similar as carbon and silicon.

## *Answer 5:*

Gold (Au) was the right answer. Gold is a metal that you will usually find inside of the Earth. You will probably never see gold as a gas. Nitrogen (N), oxygen (O), and argon (Ar) are all found in the atmosphere. Nitrogen is the most common element found in our atmosphere.




**Curious Kids**

Hello, curious kids! Have you got a question you'd like an expert to answer? Ask an adult to send your question to us. Please tell us your name, age and which town or city you live in. You can send an audio recording of your question too, if you want.

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