



THE MEDSCIENCE CLUB PRESENTS

THE MEDMONTHLY MAGAZINE!

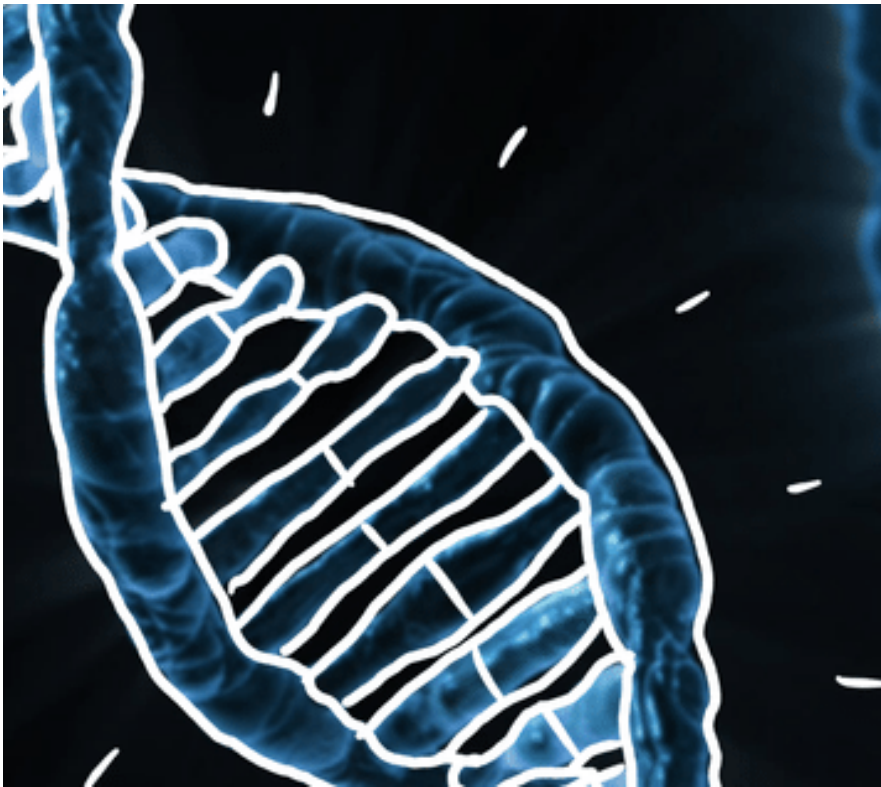
Get ready to learn, be amazed, and explore!

Check out awesome experiments and award-winning article summaries from all over the globe, plus solve fun puzzles!



Can gene-editing create super-humans?

Could CRISPR technology lead to the development of real-life superheroes like the X-Men? We think yes – and you may be shocked to learn that people with superhuman abilities already walk among us.



0.5. That is where Albert Einstein is on a scale of theorist rankings, where 0 is the highest and 5 is the lowest. The man who revolutionised our way of thinking is only at a 0.5. This leads one to question, what would it take to be rated as a 0 on such a scale? It has been discovered that mutations in the genes are responsible for a difference in intelligence levels. Certain mutations can cause a decrease

in IQ whereas others can cause an increase. This directs the scientific research required in two directions: firstly, identifying these genes, and secondly, understanding what mutations will lead to an increase in IQ.

If we had super-intelligence, humans would have savant-like capabilities and would be able to make flying cars or colonizing mars a reality. However, it isn't that simple.

Photograph by **Aubrey Garner**

To achieve super-intelligence, scientists must edit the intelligence genome directly at every location. Even though this may be possible by technologies like CRISPR, ethically speaking, we should not encourage it.

If everyone becomes extremely smart, the whole idea of intelligence loses its value. Today's world has people from different backgrounds, with different IQ levels, performing various jobs. If everyone had super-intelligence, who would do the minimum wage jobs?

Additionally, if the technology for gene editing is expensive, not everyone will be able to afford it. This would mean that only a small portion of people will be equipped with super-intelligence, while the rest of the people will have an average or below-average IQ. This will increase the gap between rich and poor people so significantly from what it already is. The rich will practically be bossing the poor. It all sounds like the master plan of an extremely vicious supervillain. That is why implementing super-intelligent humans is highly debated, with the scale tipping towards not doing so.



DID YOU KNOW?

CRISPR stands for **Clustered Regularly Interspaced Short Palindromic Repeats**, which are DNA sequences found in bacteria that were originally from bacterial viruses called bacteriophage.

TitBits

5 facts in 50 seconds? Sign me up!



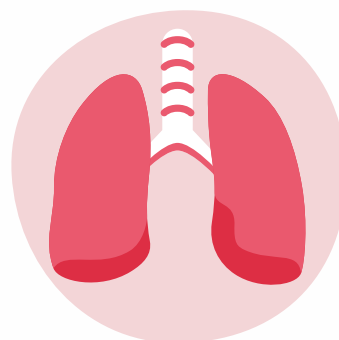
The word "**Muscle**" comes from the Latin term meaning "**little mouse**." It's said that Ancient Romans thought that's what flexed bicep muscles resembled.



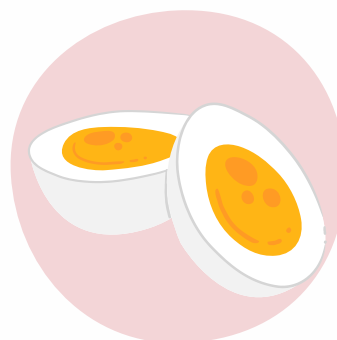
Human teeth are just as tough as **shark** teeth.



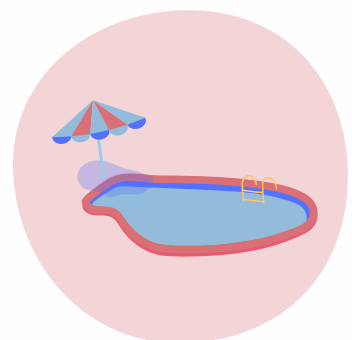
Human babies have up to **100 more bones** than adults. As babies develop and mature, several bones **fuse** together!



The **surface area** of **lungs** are large enough to cover one side of a **tennis court**.



Eating **eggs** improves your **reflexes**.



Urinating in a pool is dangerous for your heart: urine and chlorine create **cyanogen chloride** which is classified as a **chemical warfare agent**.



WOMEN IN STEM

How they made an impact in the fields of Science, Technology, Engineering, and Mathematics.



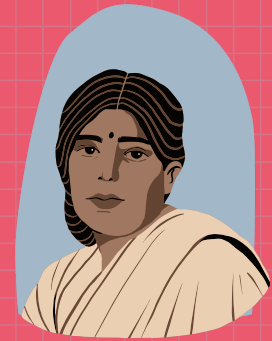
ADA LOVELACE

First known computer programmer. Created the first computer algorithm.



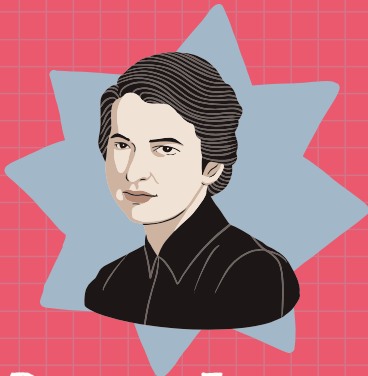
MARIE CURIE

Discovered the elements polonium and radium. Among the first to study radioactivity.



JANAKI AMMAL

Expert in plant breeding. Co-authored an atlas with chromosome numbers of about 100,000 plants.



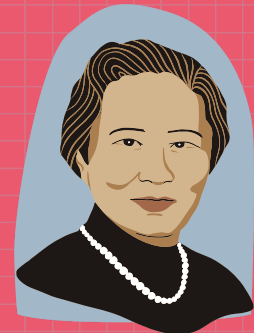
ROSALIND FRANKLIN

Captured the X-ray diffraction pattern of DNA which led to the discovery of the double helix. Studied and made models of viruses.



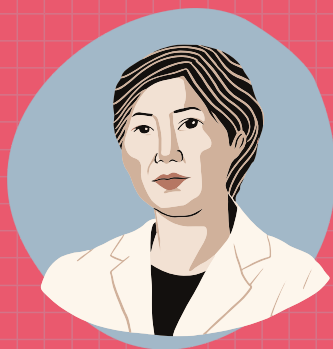
VERA RUBIN

Established the existence of dark matter. Pioneered studies on the rotation of galaxies.



CHIEN-SHIUNG WU

Confirmed beta decay, which was crucial in particle physics. Among the developers of the process for separating uranium metal.



FLOSSIE WONG-STAAAL

Pioneering Molecular Virologist who made great contributions to HIV and AIDS research. Developed treatments that helped patients manage the disease.



GLADYS WEST

Collected and analyzed satellite data used to create the mathematical model of the Earth. Her work led to the development of the Global Positioning System or GPS Technology.

SPECIALITY OF THE MONTH

NUCLEAR MEDICINE

Deadly medicine?

Nuclear medicine is a medical specialty that uses radioactive tracers (radiopharmaceuticals) to assess bodily functions and to diagnose and treat disease. Specially designed cameras allow doctors to track the path of these radioactive tracers. Single Photon Emission Computed Tomography or SPECT and Positron Emission Tomography or PET scans are the two most common imaging modalities in nuclear medicine.

Nuclear medicine techniques differ from other imaging modalities in that they focus on function rather than detailed anatomic structure.

Advantages:

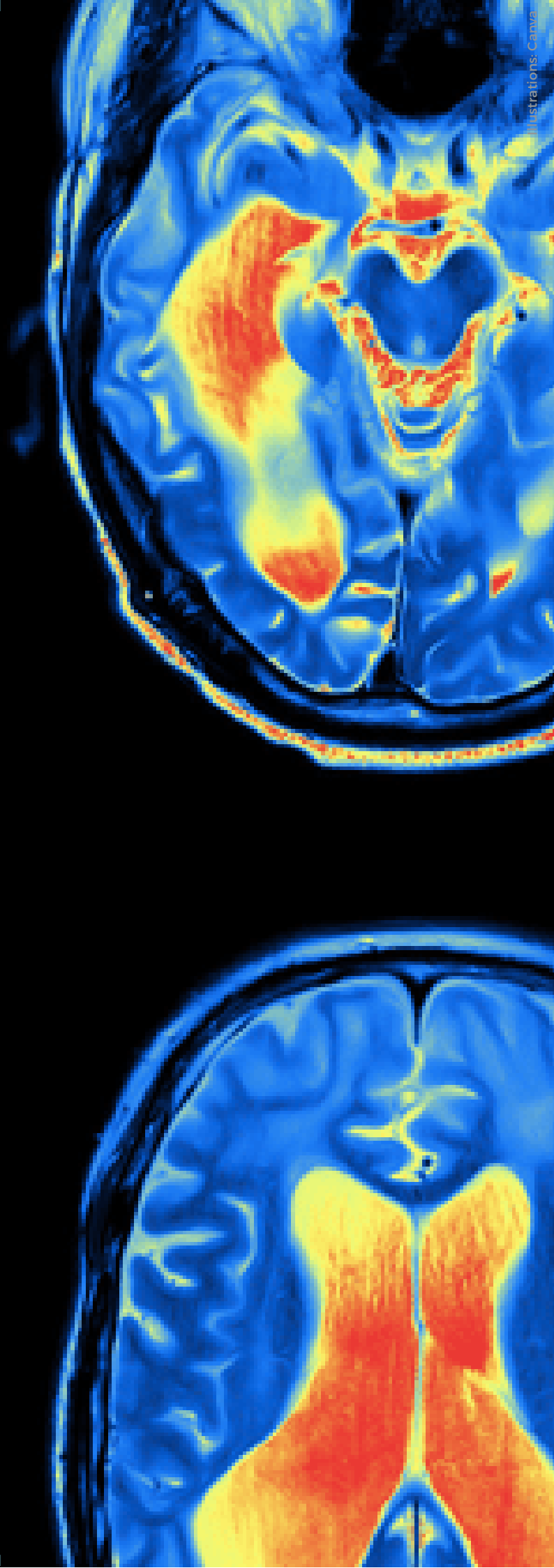
1. Nuclear medicine provides functional and anatomic information.
2. It is a useful tool for determining the status of cancer.
3. This technology can provide answers for unclear or abnormal lab results.
4. Nuclear medicine has the ability to help the heart.
5. The amount of radiation distributed to patients in this procedure is minimal.

Disadvantages:

1. It may offer adverse impacts on women who are pregnant.
2. There is a threat of severe allergic reactions with nuclear medicine.
3. The cost of nuclear medicine is unmanageable without insurance or subsidies.
4. Nuclear medicine does not provide a 100% accuracy rate.
5. You must remain still for nuclear medicine to be effective.

Advancing Nuclear Medicine!

1. Developing new tracers: A new family of PET imaging contrast agents that are taken up specifically by bacterial cells, but not human cells is being done. Such imaging agents would allow doctors to visualize early-stage bacterial infections so they can be easily treated, thereby reducing the number of implanted devices that are unnecessarily removed.
2. Creating New Technology: Current SPECT Tracer procedures are costly. An inexpensive adapter for the conventional SPECT imagers (that most hospitals already have) is being developed. The adapter would allow standard clinical SPECT cameras to provide the same high resolution that currently only dedicated SPECT brain imaging systems can produce. These improvements would make Parkinson's diagnosis less costly and more widely available.





Word Search



S	H	W	A	R	D	Y	P	S	Q	S	M	G	K
D	O	I	G	N	I	D	A	E	R	M	Q	N	E
I	T	H	E	R	M	O	M	E	T	E	R	I	F
A	E	E	Z	X	B	F	Y	Z	W	O	V	H	O
G	N	S	Y	R	I	N	G	E	V	H	X	C	B
N	E	H	Y	P	E	R	T	E	N	S	I	O	N
O	M	C	P	K	R	G	L	D	T	X	C	E	L
S	O	A	H	A	N	A	U	R	R	K	B	T	Z
I	D	A	C	U	R	E	O	P	P	A	P	E	R
S	B	M	T	G	A	P	G	A	I	I	F	F	O
X	A	I	U	T	P	V	S	U	R	G	E	O	N
R	R	A	I	U	G	K	L	U	S	H	W	C	D
W	G	O	D	I	S	E	A	S	E	S	W	J	X
E	D	O	C	T	O	R	M	N	Z	R	S	J	E

SYRINGE

WARD

DIAGNOSIS

HYPERTENSION

THERMOMETER

DOCTOR

SURGEON

ABDOMEN

DISEASE

CURE





Your Health is Our Priority!

In this world filled with germs, we have to find a way to keep ourselves safe from treacherous viruses and diseases! Let's learn a few ways to prevent us from getting sick.

- **Eating green vegetables:** They are rich in vitamins that help you maintain a balanced diet – and support a healthy immune system.
- **Wash Your Hands:** Can't say it enough! Hand Hygiene is the #1 way to prevent the spread of infection.
- **Disinfect Your Mobile Phones and Keys Every Day!**
- **Keep Your Toothbrush in a Dry, Sanitised Cabinet -** they collect germs from all over your bathroom!
- **You should cover your mouth and nose when you cough or sneeze with a tissue or in your elbow -**
#spreadlovenotgerms
- **Keep hand sanitisers handy!**
- **Getting vaccinated is the best way to protect against seasonal flu infections. #provax**

By simply following these ways we can stay safe from diseases and vicious viruses!



START THE DAY WITH SOME YOGA

Yoga reinforces the muscles while building flexibility. Getting up from your bed and doing even five minutes of yoga can loosen up your psyche and body.

In between their hectic schedule, teens forget about the healthy body and mind. Yoga provides a guidance to life and maintains harmony. If you are eager to know more about the practice of yoga then delve yourself into the media below.

SURYA NAMASKAR



1 NAMASTE PRAYER



5 MOUNTAIN POSE



9 EQUESTRIAN POSE



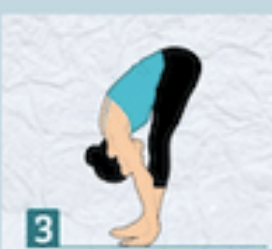
2 UPWARD SALUTE



6 STAFF POSE



10 HAND TO FOOT POSE



3 FORWARD FOLD



7 COBRA POSE



11 RAISED ARM POSE



4 LEFT LEG LUNGE



8 MOUNTAIN POSE



12 PRAYER POSE

ADVANCEMENTS IN OUR AGE!

SMART CONTACT LENSES SUCCESSFULLY DETECT GLUCOSE LEVELS

1. DIABETES IS CALLED AN INCURABLE DISEASE BECAUSE ONCE IT DEVELOPS, IT DOES NOT DISAPPEAR REGARDLESS OF TREATMENT IN MODERN MEDICINE. BUT WHAT IF YOU COULD CONTROL THE SECRETION OF INSULIN JUST BY WEARING CONTACT LENSES?

3. THE WIRELESS POWERED SMART CONTACT LENS THAT CAN DIAGNOSE AND TREAT DIABETES WORKS BY CONTROLLING DRUG DELIVERY WITH ELECTRICAL SIGNALS. THEY ARE MADE OF BIOCOMPATIBLE POLYMERS AND INTEGRATE BIOSENSORS AND DRUG DELIVERY AND DATA COMMUNICATION SYSTEMS.



2. RECENTLY, A RESEARCH TEAM AT POSTECH DEVELOPED WIRELESSLY DRIVEN 'SMART CONTACT LENS' TECHNOLOGY THAT CAN DETECT DIABETES AND FURTHER TREAT DIABETIC RETINOPATHY JUST BY WEARING THEM.

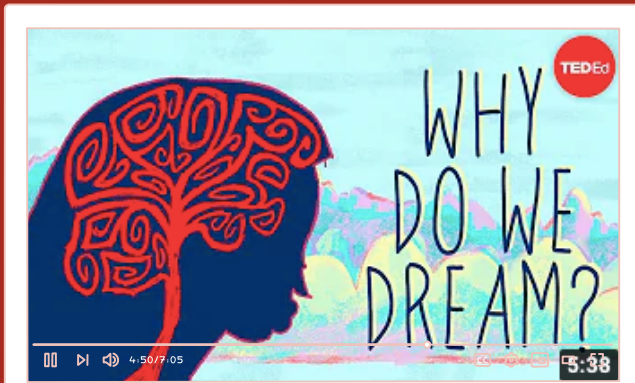
4. THE DEVICE DEPENDS ON CHIP TECHNOLOGY WHICH OBSERVES SUGAR LEVELS USING THE PERSONS BLOOD VESSELS BEHIND THE EYELIDS AND WILL ADMINISTER AN ALARM IF A HEALTH EMERGENCY OCCURS.

5. THE RESEARCH TEAM VERIFIED THAT THE GLUCOSE LEVEL IN TEARS OF DIABETIC RABBITS ANALYZED BY SMART CONTACT LENSES MATCHED THEIR BLOOD GLUCOSE LEVEL USING A CONVENTIONAL GLUCOSE SENSOR THAT UTILIZE DRAWN BLOOD. THE TEAM ADDITIONALLY CONFIRMED THAT THE DRUGS ENCASED IN SMART CONTACT LENSES COULD TREAT DIABETIC RETINOPATHY.

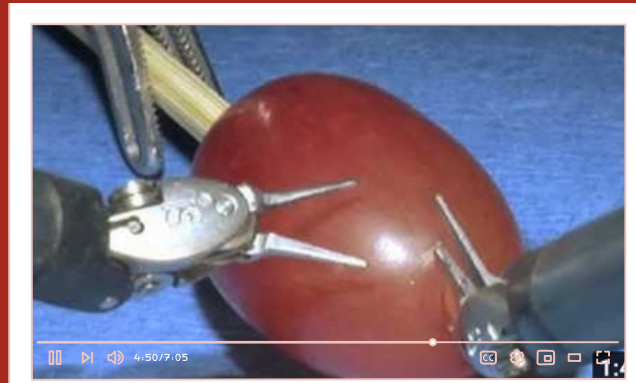
6. THE RESEARCH TEAM EXPECTS THIS DEVELOPMENT OF SELF-CONTROLLED THERAPEUTIC SMART CONTACT LENSES WITH REAL-TIME BIOMETRIC ANALYSIS TO BE QUICKLY APPLIED TO WEARABLE HEALTHCARE INDUSTRIES.



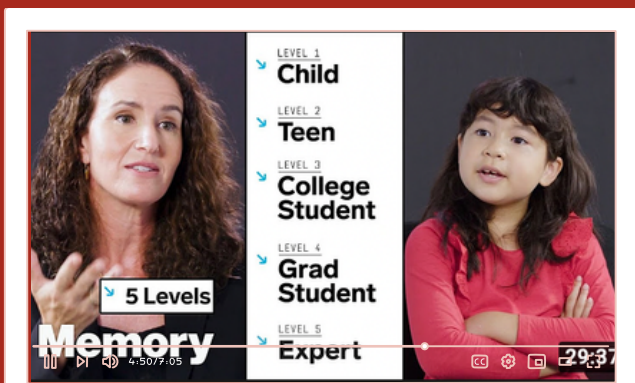
YOUTUBE VIDEOS FOR YOUR INNER SCIENTIST!



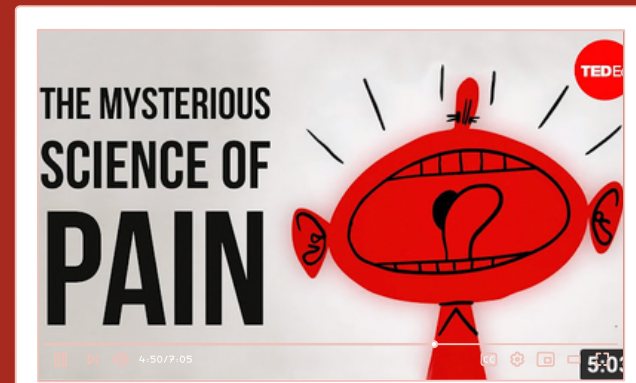
WHY DO WE DREAM? - AMY ADKINS



DA VINCI SURGICAL SYSTEM- SURGERY ON GRAPE



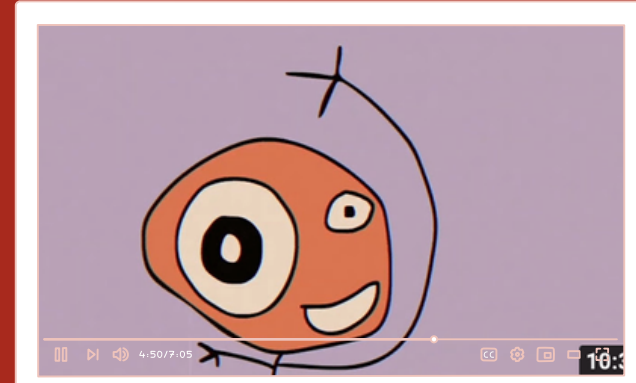
NEUROSCIENTIST EXPLAINS IN 5 LEVELS OF DIFFICULTY



THE MYSTERIOUS SCIENCE OF PAIN - JOSHUA W. PATE




REAL DOCTOR REACTS TO GREY'S ANATOMY

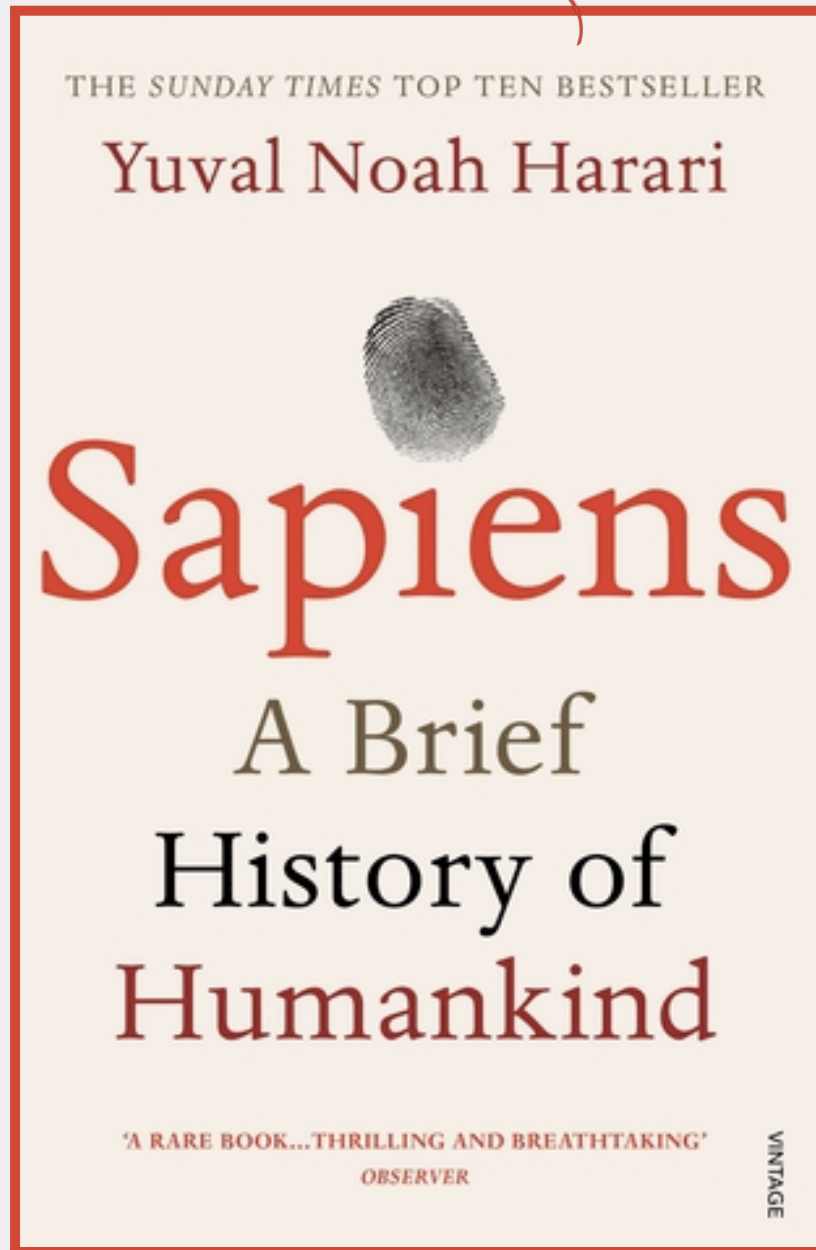


THE 15 WEIRDEST PSYCHOLOGICAL DISORDERS



Must Reads For Aspiring Savants

Read here! 



This massively engaging, and continuously interesting novel is a brilliant and thought-provoking odyssey through human history. The book covers a mind-boggling 13.5 billion years of pre-history and history. From unraveling the true identity of our species, to opening the readers' minds to the fine line between myths and facts, Harari's novel leaves us awe-struck. By shining light upon the vastness of human life, and discovering our insignificance at the same time, the text opens a whole new perspective to look at the world from However, his populist and one-sided account might not appeal to all audiences, especially the religiously inclined. The book is, nonetheless, a must-read for those inclined towards biology, anthropology and philosophy.

DIY LAVA LAMP!

WHAT YOU NEED

- A jar or an empty bottle
- Oil (vegetable oil, cooking oil, or baby oil)
- Food colouring
- Baking Soda
- Vinegar
- Measuring tools



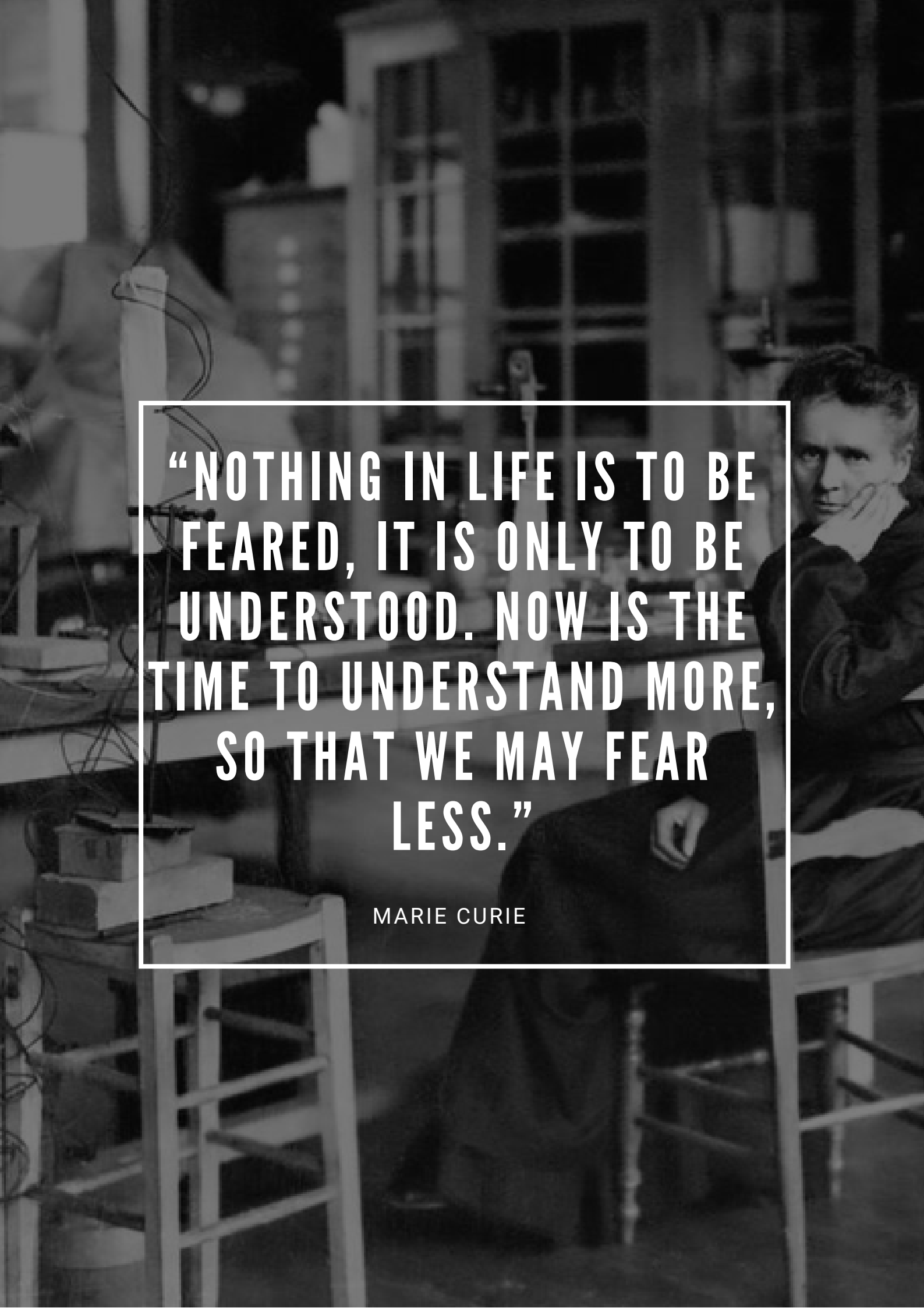
WATCH A LIVE TUTORIAL TO GUIDE YOU THROUGH THE PROCESS!

WHAT YOU DO

1. Take two tablespoons of baking soda into your empty jar
2. Fill most of the way with your choice of oil
3. Take a separate glass/bowl and pour 1/4 cup of vinegar
4. Add 3-4 drops of your favorite color food coloring (you can mix different colors to make it look cooler) in vinegar and stir the mixture.
5. Keep a LED lamp/torch/phone flashlight below your jar
6. Slowly add drops of your vinegar and food coloring mixture into the jar
7. Watch your lava lamp erupt into activity!

ACID/BASE CHEMICAL REACTION

Your lava lamp is a perfect example of an acid/base reaction where baking soda is sodium bicarbonate which is known as a base (a substance that releases hydroxide ions when combined with water). Vinegar is the acid (a substance that contains a high level of hydrogen ions) in this reaction. When both base and acid are combined a chemical reaction takes place where some bonds are destroyed and some bonds are created. Thus, when sodium bicarbonate and vinegar react it produces carbon dioxide which are tiny bubbles that can be seen inside your jar.

A black and white photograph of Marie Curie in her laboratory. She is seated on the right side of the frame, looking thoughtfully towards the camera with her hand resting on her chin. The background is filled with scientific equipment, including a large window with multiple panes, various apparatuses, and a wooden stool in the foreground. A white rectangular text box is centered over the image, containing a quote in bold, white, uppercase letters.

**“NOTHING IN LIFE IS TO BE
FEARED, IT IS ONLY TO BE
UNDERSTOOD. NOW IS THE
TIME TO UNDERSTAND MORE,
SO THAT WE MAY FEAR
LESS.”**

MARIE CURIE



**SOMETHING INTERESTING
YOU'D LIKE TO SHARE?**

TALK TO US!

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