QUEST

DECEMBER 2020

DRUG AWARENESS MONTH

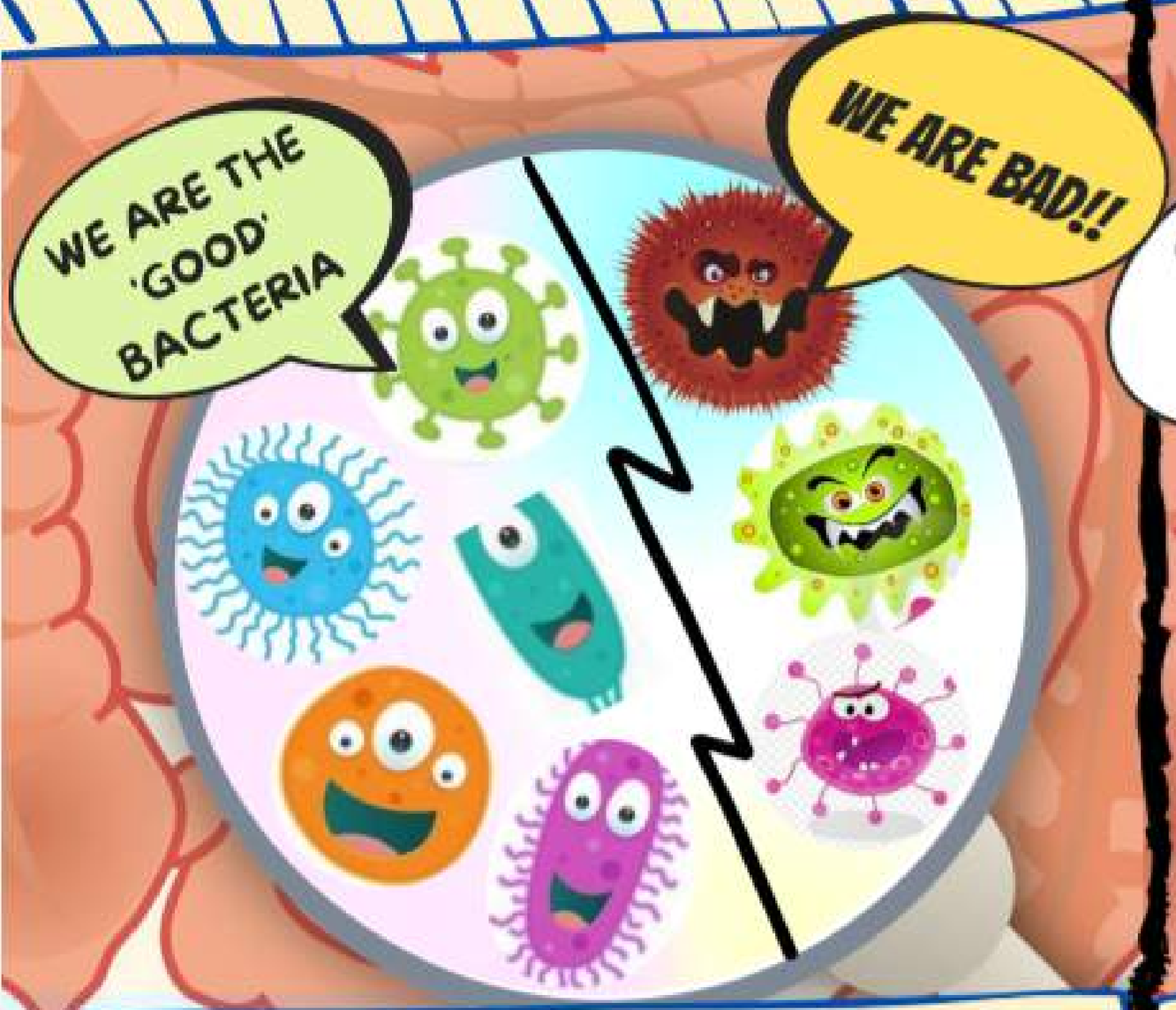
CONTENTS

Quest/December Edition/2020

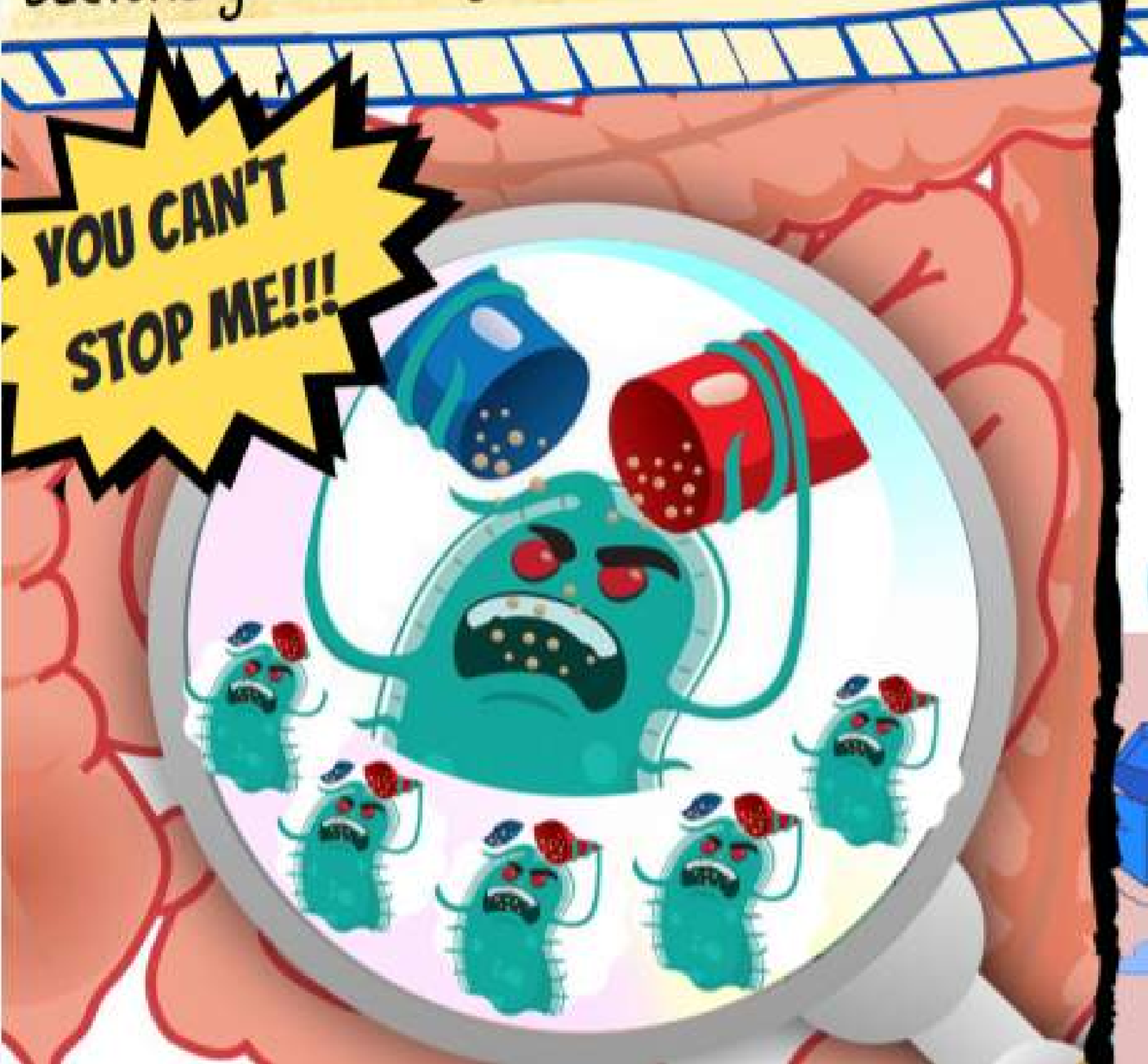
THE STORY OF ANTIBIOTIC RESISTANCE

By Dr. Manpreet Kaur

the Gut Microbiome consists of 85% 'good' bacteria and 15% 'bad' bacteria. the 'good' bacteria keep a check on the 'bad' bacteria.



the drug-resistant bacteria multiply at a fast rate due to decreased immunity (as 'good' bacteria get killed by antibiotics) & take over.



Excessive use of antibiotics not only kill 'bad' bacteria but also the 'good' bacteria. However, due to mutations, few 'bad' bacteria become drug-resistant.

the drug-resistant bacteria may develop resistance against multiple drugs (MDR) and pose serious problem for public health.

Mathematics in field of medicines

PPT- BY AHINSA JAIN

Hi, students!

Have you ever seen a doctor's prescription for a particular illness?
Is it same for all the patient suffering from same illess?
Both doctors and nurses use math every day while providing health care for people around the world. They use math when they write prescriptions or administer medication. Medical professionals use math when drawing up statistical graphs of epidemics or success rates of treatments.

Math applies to x-rays and CAT scans. Numbers provide an abundance of information for medical professionals.

Wondering why

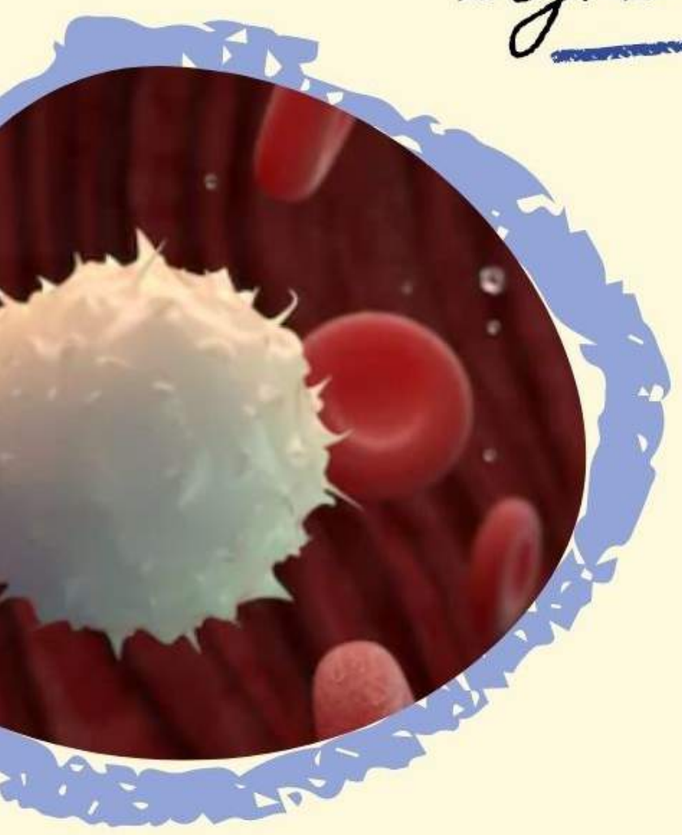
It is reassuring for the general public to know that our doctors and nurses have been properly trained by studying mathematics and its uses for medicine.It is reassuring for the general public to know that our doctors and nurses have been properly trained by studying mathematics and its uses for medicine.It is reassuring for the general public to know that our doctors and nurses have been properly trained by studying mathematics and its uses for medicine.

Ever wondered why so many numbers are there in the medical Prescripti ...?

Numbers give doctors much information about a patient’s condition.

Let’s see how ?

They provide measurements of health, which can be warning signs of infection, illness, or disease.



White blood cell counts are generally given as a numerical value between 4 and 10. However, a count of 7.2 actually means that there are 7200 white blood cells in each drop of blood (about a microlitre).

In much the same way, the measure of creatinine (a measure of kidney function) in a blood sample is given as X mg per deciliter of blood. Doctors need to know that a measure of 1.3 could mean some extent of kidney failure. Numbers help doctors understand a patient’s condition.

Why are Prescriptions important, and how is it related to mathematics?

Wondering how does that help?

Prescriptions indicate a specific medication and dosage amount. and Most medications have guidelines for dosage amounts in milligrams (mg) per kilogram (kg).

Doctors need to figure out how many milligrams of medication each patient will need, depending on their weight. If the weight of a patient is only known in pounds, doctors need to convert that measurement to kilograms and then find the number of milligrams for the prescription. Doctors must also determine how long a prescription will last along with how long the medicine will stay in the patient's body.

This helps because.

This will determine how often the patient needs to take their medication in order to keep a sufficient amount of medicine in the body.

Let's see how?

A patient takes a pill in the morning that has 50mg of a particular medicine. When the patient wakes up the next day, their body has washed out 40% of the medication. This means that 20mg have been washed out and only 30mg remain in the body.

The patient continues to take their 50mg pill each morning. This means that on the morning of day two, the patient has the 30mg leftover from day one, as well as another 50mg from the morning of day two, which is a total of 80mg. As this continues, doctors must determine how often a patient needs to take their medication, and for how long, in order to keep enough medicine in the patient's body to work effectively, but without overdosing..

Interesting isn't it?

Mathematics plays a crucial role in medicine because people's lives are involved. It is very important for doctors and Nurses to be very accurate in their medical calculations.

Numbers provide a lot of information to the patients as well. They provide measurements of health, which can be warning signs of infection, illness, or disease..

So now you know

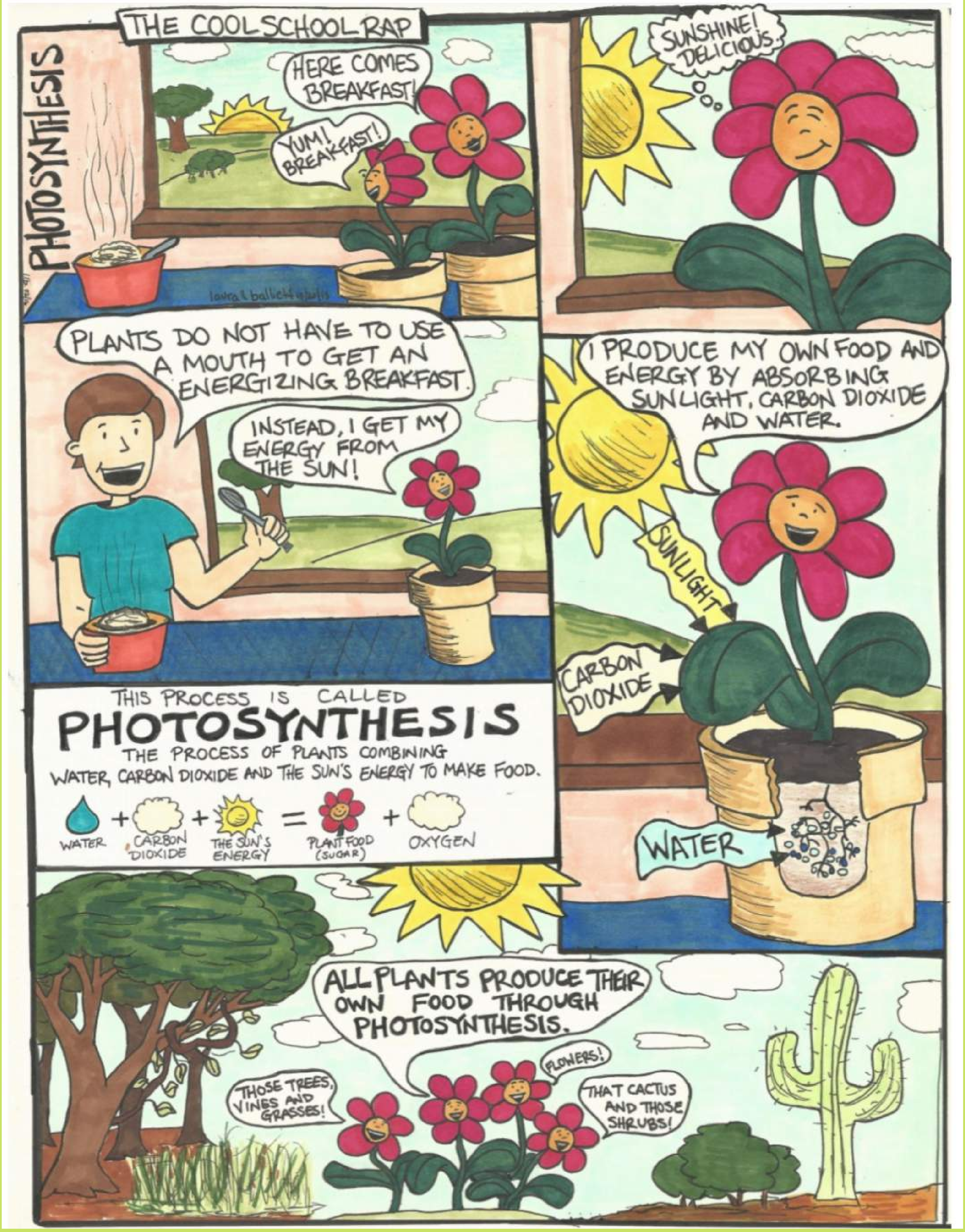
Numbers are a way of communicating information, which is very important in the Medical.

"Medicine is the science of uncertainty and art of probability. "

VIDEO GALLERY

5 FACTS ABOUT ANTIBIOTIC RESISTANCE

~ SATISH DIXIT


PHOTOSYNTHESIS
THE COOL SCHOOL RAP
HERE COMES BREAKFAST!
YUM! BREAKFAST!
laura l ballicki
SUNSHINE! DELICIOUS.
PLANTS DO NOT HAVE TO USE A MOUTH TO GET AN ENERGIZING BREAKFAST.
INSTEAD, I GET MY ENERGY FROM THE SUN!
I PRODUCE MY OWN FOOD AND ENERGY BY ABSORBING SUNLIGHT, CARBON DIOXIDE AND WATER.
SUNLIGHT
CARBON DIOXIDE
WATER
THIS PROCESS IS CALLED
PHOTOSYNTHESIS
THE PROCESS OF PLANTS COMBINING WATER, CARBON DIOXIDE AND THE SUN'S ENERGY TO MAKE FOOD.
WATER
CARBON DIOXIDE
THE SUN'S ENERGY
PLANT FOOD (SUGAR)
OXYGEN
ALL PLANTS PRODUCE THEIR OWN FOOD THROUGH PHOTOSYNTHESIS.
THOSE TREES, VINES AND GRASSES!
FLOWERS!
THAT CACTUS AND THOSE SHRUBS!

Manya SS1A

The Fascinating Numbers

- Suhani Rathi, MIE

Mathematics is a type of science in which we study measurement, quantity and numbers. Mathematics is everywhere and in every thing we do. The Pythagoreans in Greece invented mathematics and considered it as a compulsory subject. The first number of our counting is zero, without zero mathematics is incomplete. The great Indian mathematician Aryabhata invented number zero in the fifth century. He was not just a mathematician but also an astronomer. Another great Indian mathematician was Brahmagupta. He wrote on topics such as geometry, algebra and astronomy. He also gave solutions to general linear equation and to a general quadratic situation. Now I would like to express my feelings towards mathematics when I used to hate it. Here it is –

Work hard, work hard and work hard,
and the more I work hard
the more I cry.
I practice mathematics everyday with my
heart and soul,
yet I am not able to achieve my goal.
I never get scoring marks in mathematics,
inspite of my great struggle,
Destiny is never in my favour.
I really want to rewamp my mathematics,
Because I love this subject and for this I
am trying my level best.
I am candid so I confess,
In mathematics examination I always
create a mess,
All the answers I guess and eventually the
marks I got were quite less.
I accept that I do enough practice,
I will one day most likely achieve my goal,
And I seriously have to improve because
in our lives mathematics play a very
significant role!

VIDEO GALLERY

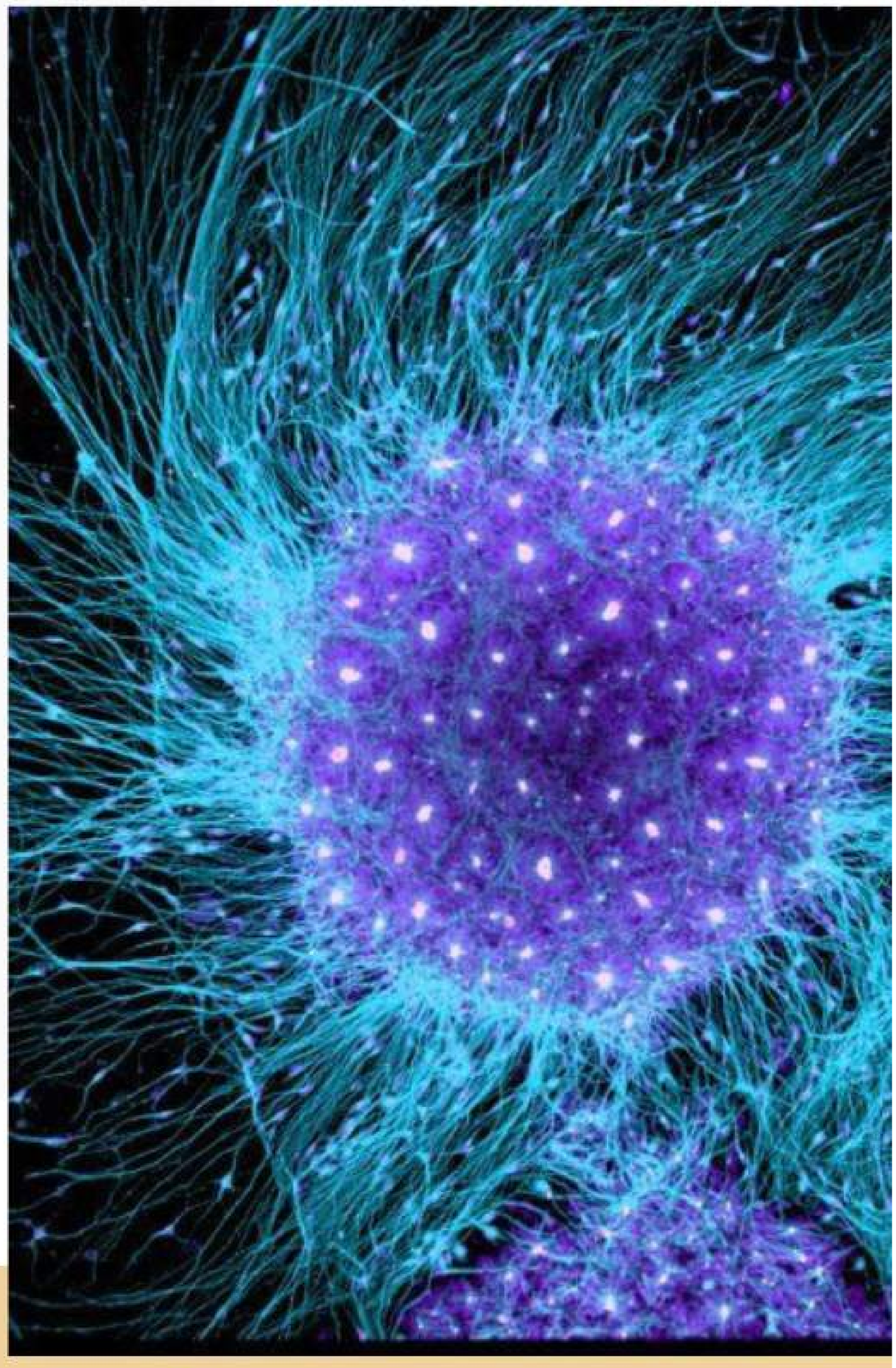
Artificial Intelligence - Tushar Negi, S1D

https://youtu.be/YOjUlOlOqfY

Home-made Sanitizer Machine - Manav Guta M2A

https://drive.google.com/file/d/1HNJBB8ipwoGB8nQJ6gYiLXziPuqWTT3X/view?usp=drivesdk

WALK INSIDE CELLS WITH THIS VIRTUAL REALITY SOFTWARE



The software called vLUME, developed along with a 3D image analysis software firm, Lume, could be used to understand fundamental problems in biology and develop new treatment for diseases.
Scientists at the University of Cambridge have created a virtual reality software which lets researchers walk inside and analyse individual cells.

The VR system allows super-resolution microscopy data to be visualised and analysed in virtual reality, and can be used to study everything from individual proteins to entire cells.

Super-resolution microscopy, which was awarded the Nobel Prize for Chemistry in 2014, makes it possible to obtain images at the nanoscale. However, researchers could not come across ways to visualise and analyse the data obtained through this method in three dimension until vLUME.

The software can be loaded with multiple datasets carrying millions of data points, and find patterns using in-built clustering algorithms. These findings can then be shared with collaborators worldwide using image and video features in the software.

Alexandre Kitching, CEO of Lume said the software will allow scientists to visualise, question and interact with 3D biological data, in real time within a virtual reality environment.

Know More-

A student from the group of researchers used the software to image an immune cell taken from her own blood, and then stood inside her own cell in virtual reality.

"It's incredible - it gives you an entirely different perspective on your work," she sai

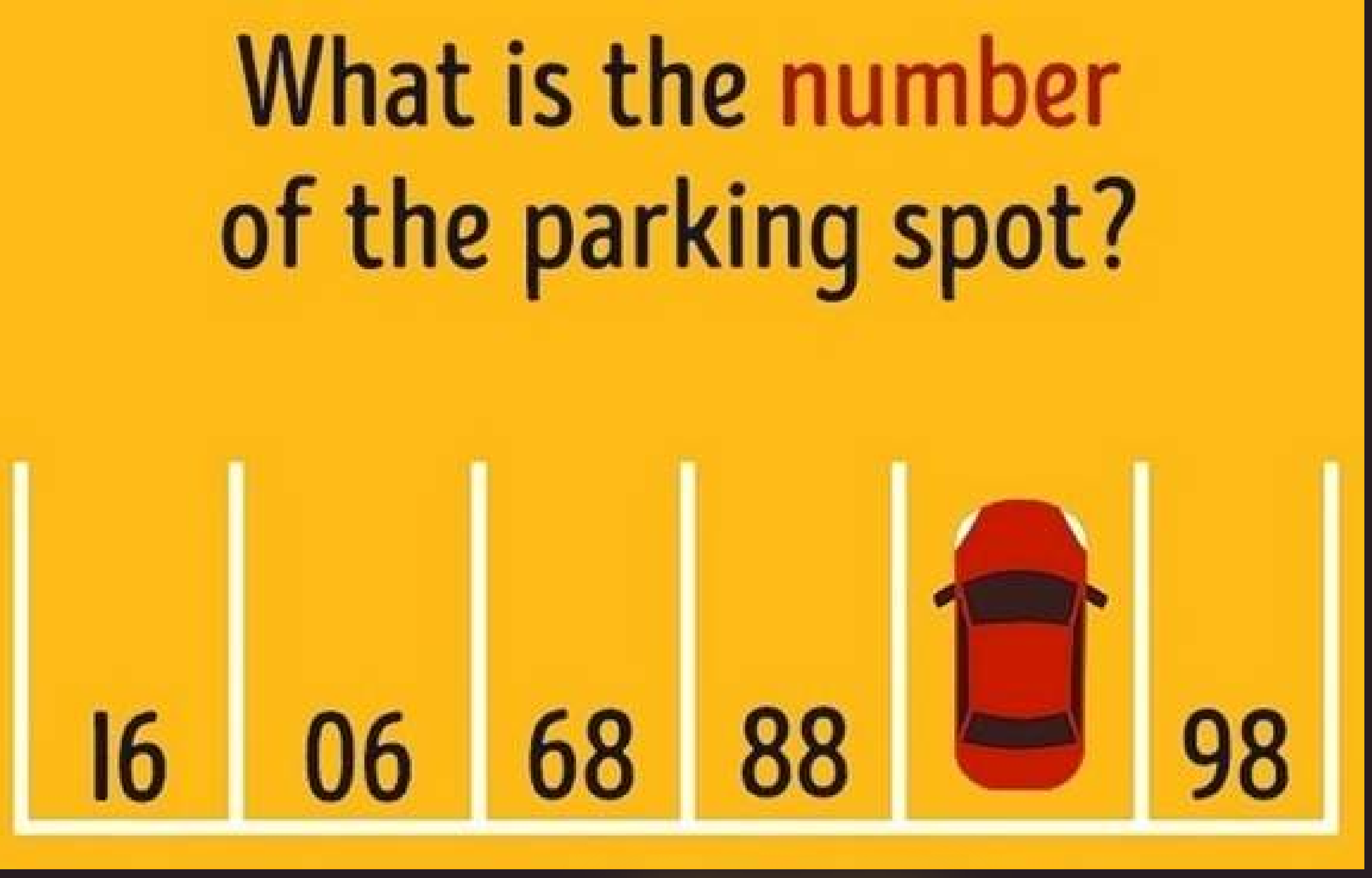
"All you need is a VR headset!"

-AKANSHA IVY LAKRA, SS1 A

SUDOKU

						8		6
4		5	6	9			1	
		9			2	4		
5					3		8	
		7	8		9	6		
	9		2					3
		4	7			1		
	6			4	1	7		8
7		3						

Enter digits from 1 to 9 into the blank spaces.
Every row must contain each of one digit.
So must every column, as must every 3x3 square.



BRAIN TEASERS!

THE FOUR DOORS

You are an expert on paranormal activity and have been hired to locate a spirit haunting an old resort hotel. Strong signs indicate that the spirit lies behind one of four doors. The inscriptions on each door read as follows:

Your psychic powers have told you three of the inscriptions are false, and one is true. Behind which door will you find the spirit?

DRUG AWARENESS MONTH

“If we use antibiotics when not needed, we may not have them when they are most needed.” - Dr. Tom Frieden, Director U.S. CDC