INFOGRAPHICS

WHAT IS AN INFOGRAPHIC?

- An infographic uses pictures and words to share information.

Cell Turnover

Each of the body's 200-plus types of cells has its own programmed time for existence, before being replaced with more of its kind from that tissue's rapidly multiplying stem cells. In general, hard physical wear or chemical exposure means faster turnover. Deep in the brain are the longest survivors – the neurons that give us thoughts, feelings and memories.

Retinal cells: Average lives of the light-sensing or photoreceptor cells, rods and cones, mean a constant slow turnover in the delicate eye lining.

Cheek lining cells: Constant wear and friction from heavy-duty chewing means these epithelial (surface) cells are among the shortest-lived of all.

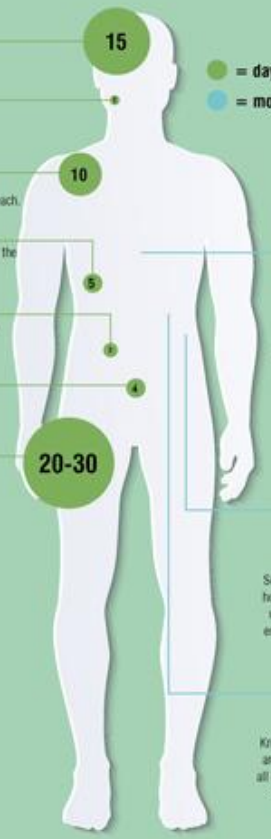
Platelet blood cells: Central to the clotting process, platelets are involved in chemical changes, stickiness and clumping that seal any vessel or tissue breach.

Large intestinal lining: Although digestive processes have almost finished by the colon (large intestine), physical wear is great as the faeces are squeezed.

Small intestinal lining cells: The ileum (small intestine) is a physically busy organ, writhing and squirming to force food along inside, with much rubbing.

Stomach lining: Although protected by thick mucus, cells in the stomach are still assaulted by hydrochloric acid and several digestive enzymes.

Epidermal (outer skin) cells: Physical wear, friction and minor injuries mean the whole outer layer of skin, the epidermis, replace itself at least once each month.



16

Lung lining cells
The tiny air sacs, alveoli, accumulate bits of dust and other debris at a slow rate and so are replaced every one to two years.

12

Pancreatic cells
Some pancreatic cells make the hormones insulin and glycogen, while other produce digestive enzymes for the small intestine.

5

Liver cell
Known as hepatocytes, liver cells are multi-tasking, able to handle all kinds of minerals and nutrients, as well as storing vitamins.

25 years
Bone maintenance

Osteocytes have complex shapes, like a three-dimensional spider with over 100 'legs'. They keep bone minerals topped up and turning over.

80 years
Brain neurons

Their enormously complex architecture, with thousands of synapses (connections) to other nerve cell, and cosseted by an army of glial (support) cells, mean cerebral neurons can last almost a lifetime.

60 years
Memory white cells

After an infection, a few memory T and B cells circulate for years, even decades, ready to spring into action and fight the same disease again.

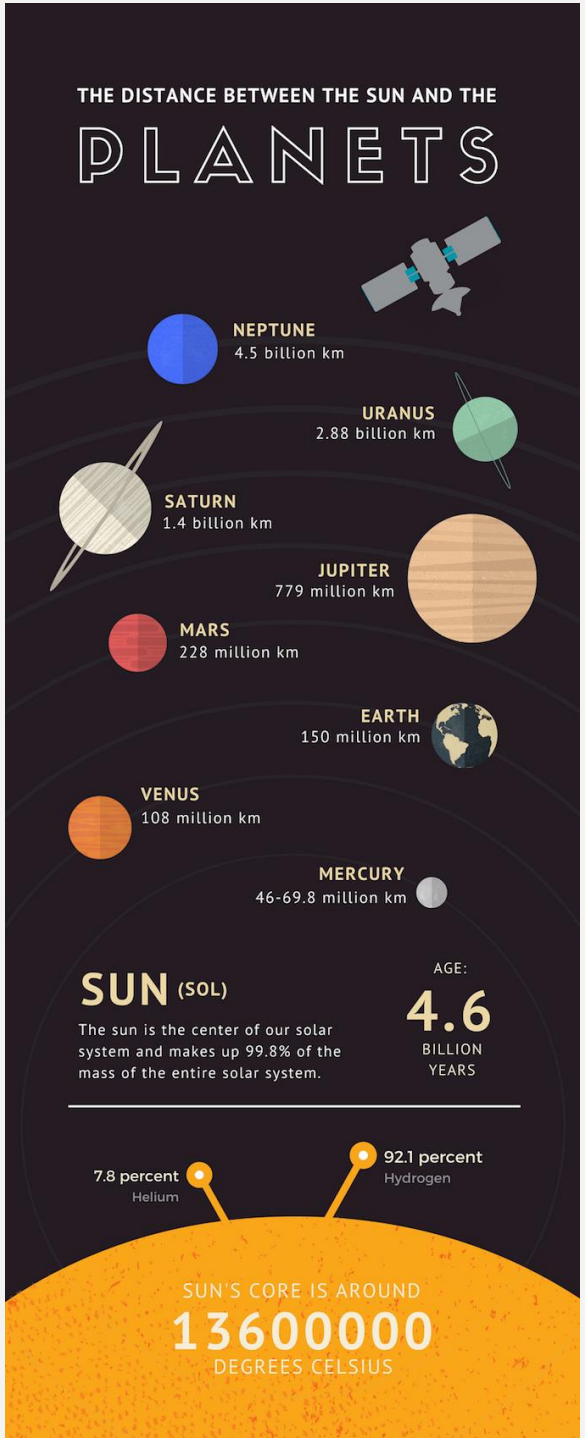
15 years
Skeletal muscle cells

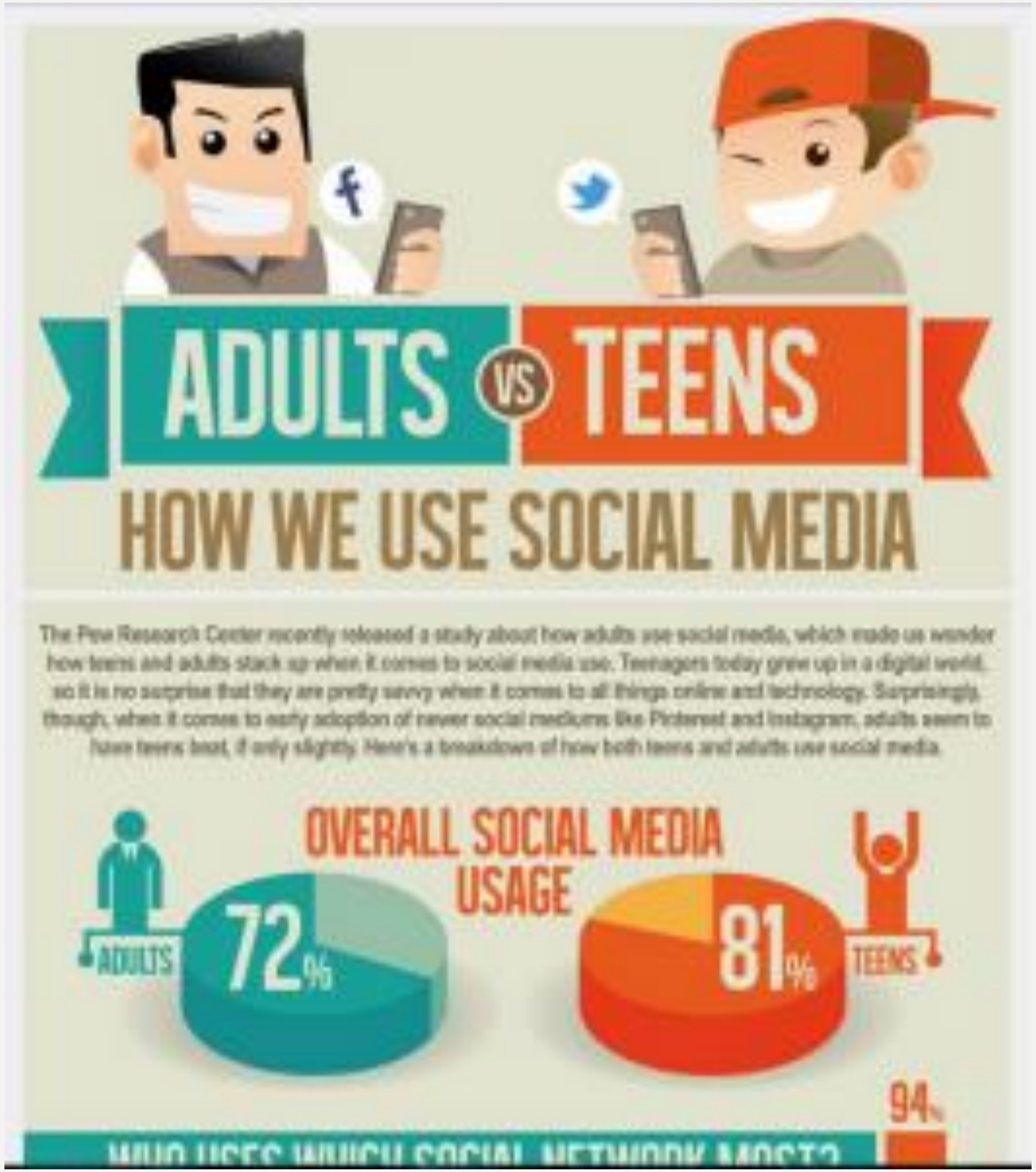
Muscle cells or myocytes are big 'multicells' made of many smaller cells fused into one unit which may have a diameter of one millimetre.

50 years
Egg cells

There is a huge contrast between gamete (sex cell) lifespans. Sperm are manufactured in their millions daily but soon perish. All egg cells are already present in a new baby girl's ovaries; a tiny fraction are recruited by the monthly cycle; the rest do not survive menopause.

Sperm cells 3


THE DISTANCE BETWEEN THE SUN AND THE
PLANETS
NEPTUNE
4.5 billion km
URANUS
2.88 billion km
SATURN
1.4 billion km
JUPITER
779 million km
MARS
228 million km
EARTH
150 million km
VENUS
108 million km
MERCURY
46-69.8 million km
SUN (SOL)
The sun is the center of our solar system and makes up 99.8% of the mass of the entire solar system.
AGE:
4.6
BILLION YEARS
7.8 percent
Helium
92.1 percent
Hydrogen
SUN'S CORE IS AROUND
13600000
DEGREES CELSIUS


ADULTS VS TEENS
HOW WE USE SOCIAL MEDIA
The Pew Research Center recently released a study about how adults use social media, which made us wonder how teens and adults stack up when it comes to social media use. Teenagers today grew up in a digital world, so it is no surprise that they are pretty savvy when it comes to all things online and technology. Surprisingly though, when it comes to early adoption of newer social mediums like Pinterest and Instagram, adults seem to have teens beat, if only slightly. Here's a breakdown of how both teens and adults use social media.
OVERALL SOCIAL MEDIA USAGE
ADULTS
72%
81%
TEENS
94%

THE SALTY SIX For Kids

American Heart Association | American Stroke Association

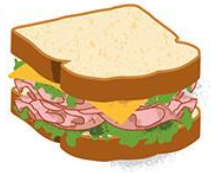
life is why

- About 90% of kids eat too much sodium.
- Kids' preferences for salty-tasting foods are shaped early in life.
- Parents and caregivers can help lower sodium by influencing how foods are produced, purchased, prepared and served.

FOODS THAT ADD THE MOST SODIUM TO THE DIET, AGES 6-18:

1. 
PIZZA

2. 
BURRITOS & TACOS*

3. 
SANDWICHES**

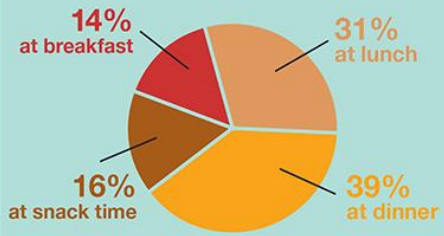
4. 
BREADS & ROLLS

5. 
COLD CUTS & CURED MEATS

6. 

SOUPS

The sodium kids eat comes from every meal and snack:



Most of the sodium kids eat is already in the foods they get from:

STORES	RESTAURANTS	SCHOOL CAFETERIAS
58%	23%	10%

... and not from the salt shaker

Learn more at **heart.org/sodium**

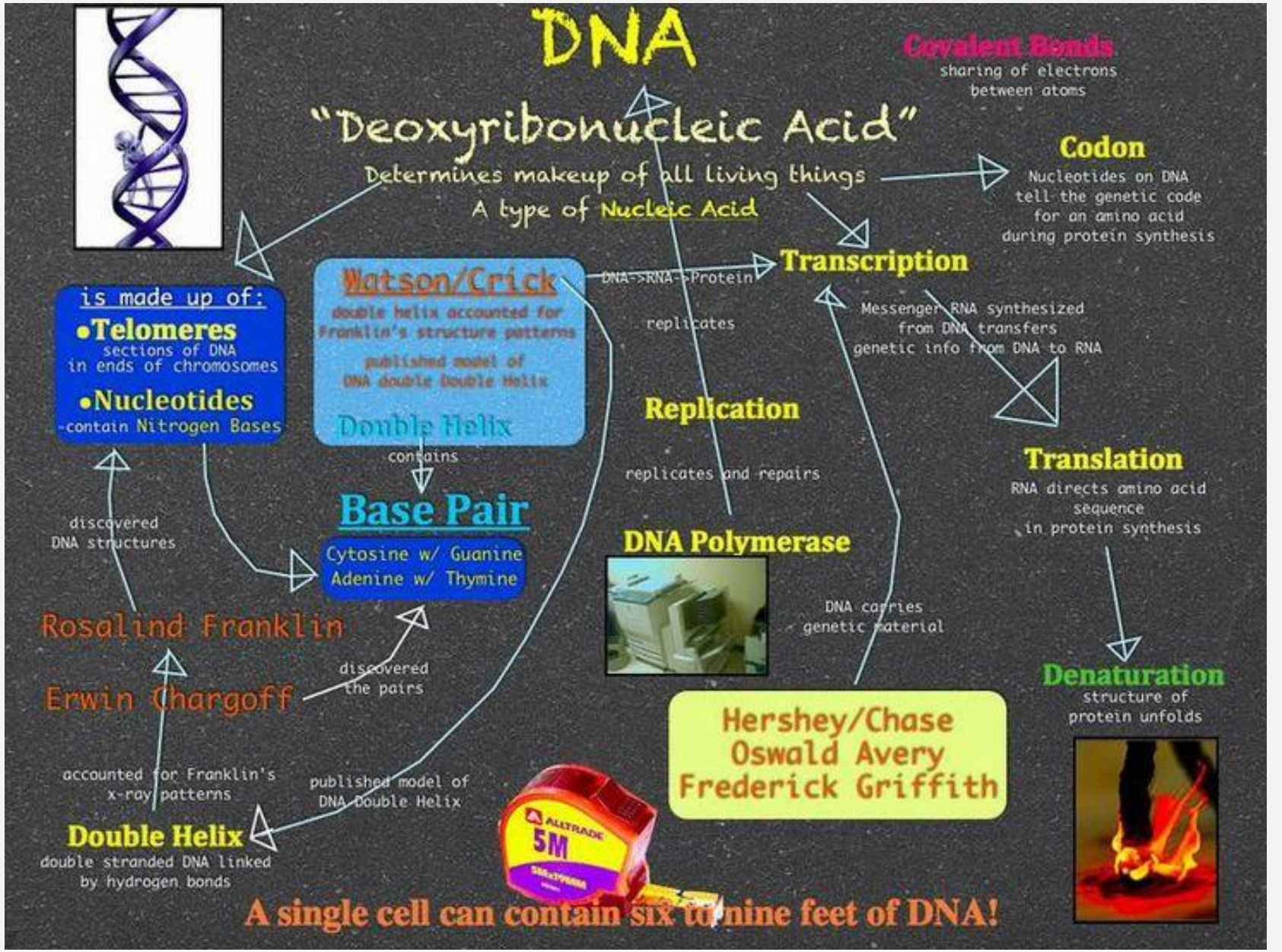
Source: http://www.cdc.gov/vitalsigns/children-sodium/
Vital Signs: Sodium Intake Among U.S. School-Aged Children — 2009–2010

Quader et al. Sodium Intake among US School-Aged Children: National Health and Nutrition Examination Survey, 2011-2012. Journal of the Academy of Nutrition and Dietetics. November 2016.

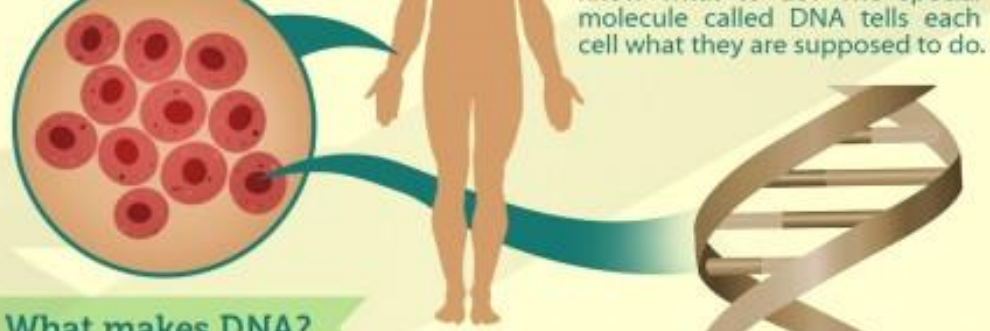
*Food category includes burritos, tacos, nachos, and other Mexican mixed dishes

**sandwiches include burgers or Frankfurter sandwiches, chicken or turkey sandwiches, breakfast sandwiches, and other sandwiches


21 SHOCKING
U.S. FOOD WASTE
FACTS & STATISTICS
40%
OF FOOD IN THE U.S. IS NEVER EATEN
GLOBALLY
4 BILLION
TONS OF FOOD IS WASTED EACH YEAR
AMERICA WASTED
33.79 MILLION
TONS OF FOOD IN
2010,
ENOUGH TO FILL THE EMPIRE STATE BUILDING
91 TIMES

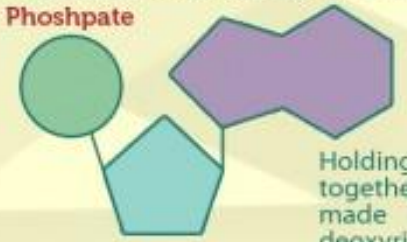

DNA
"Deoxyribonucleic Acid"
Determines makeup of all living things
A type of Nucleic Acid
Covalent Bonds
sharing of electrons between atoms
Codon
Nucleotides on DNA tell the genetic code for an amino acid during protein synthesis
is made up of:
•Telomeres
sections of DNA in ends of chromosomes
•Nucleotides
-contain Nitrogen Bases
Watson/Crick
double helix accounted for Franklin's structure patterns
published model of DNA double Double Helix
Double Helix
DNA->RNA->Protein
Transcription
replicates
Messenger RNA synthesized from DNA transfers genetic info from DNA to RNA
Replication
replicates and repairs
contains
Base Pair
Cytosine w/ Guanine
Adenine w/ Thymine
discovered DNA structures
DNA Polymerase
DNA carries genetic material
Translation
RNA directs amino acid sequence in protein synthesis
Rosalind Franklin
Erwin Chargoff
discovered the pairs
Hershey/Chase
Oswald Avery
Frederick Griffith
Denaturation
structure of protein unfolds
accounted for Franklin's x-ray patterns
published model of DNA Double Helix
Double Helix
double stranded DNA linked by hydrogen bonds
A single cell can contain six to nine feet of DNA!

molecule called DNA tells each cell what they are supposed to do.

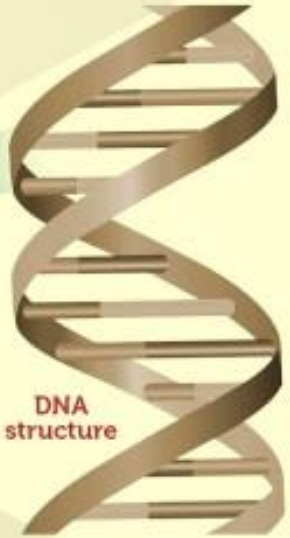


What makes DNA?

A Nucleic Acid made up of strings known as Nucleotides which are bounded with each other.

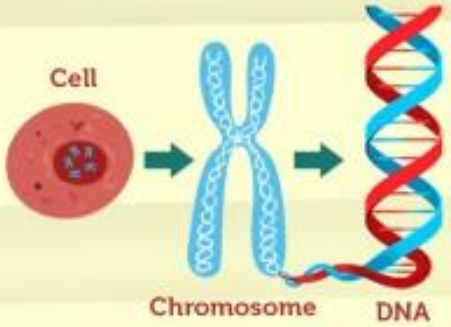


Holding these nucleotides together is a backbone made of phosphate and deoxyribose.



Where is DNA found?

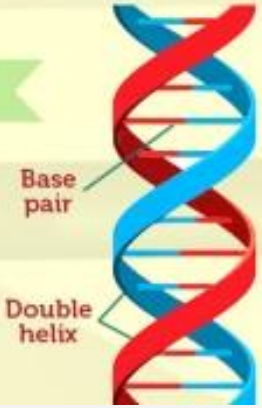
DNA is present in every cell of every living being. It is found in structures of every cell called chromosomes. Chromosomes work with nucleic acids in the cell to build proteins and help in duplication or when a cell divides.

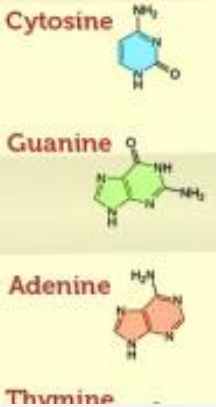


What does DNA look like?

DNA is like a spiral ladder. Each piece of DNA has two long strands/ chains that twist around each other. This spiral and twisted shape is known as the double helix.

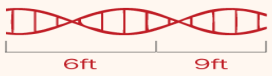
The long chains are nucleotides which are of four types- adenine (A), thymine (T), cytosine (C) and guanine (G). These four are also known as





Cells & DNA

A single cell can contain from 6 to 9 feet of DNA



75 to 100 trillion

The amount of cells the body is composed of

When a cell becomes damaged or undergoes some type of infection, it will self destruct by a process called apoptosis.

A cell's inability to undergo apoptosis can result in the development of cancer.

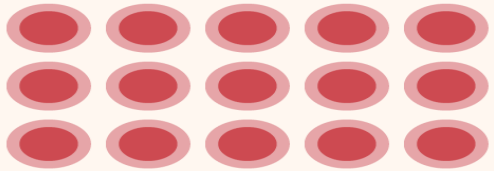
The chromosomes and DNA from all your cells laid out end to end...

would stretch from the Earth to the Moon **6,000 times**

or from the Earth to the Sun **30 times**

200

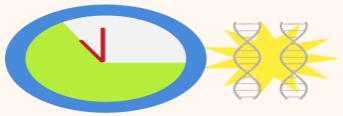
New York City phone books would be filled by a list of all of the bases in your DNA- A's, C's, G's, and T's.



Your body is creating and killing about **15 million red** blood cells per second

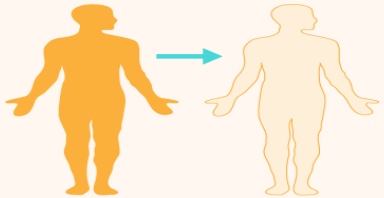
= 1 million red blood cells

It takes about eight hours for one of your cells to completely copy its DNA



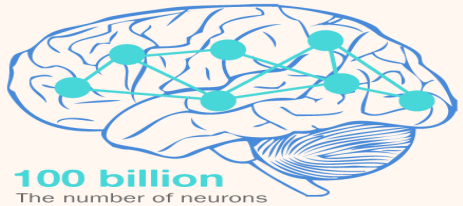
Human cells contain 23 pairs of chromosomes.

Humans shed and regrow outer skin cells about every 27 days



You could fit one thousand cell nuclei across the period at the end of this sentence.

About **95%** of the cells in your body are bacteria



100 billion

The number of neurons in the human brain

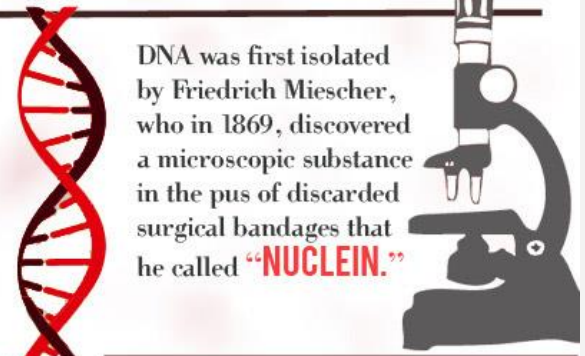
17 THINGS YOU SHOULD KNOW ABOUT

DNA

Are you a living creature? Then, congratulations! You have DNA! That microscopic little building block of life that makes us all the same, but grants us with distinct differences. But for as common as DNA is, it can be a tough subject to understand. Below are some of the facts to help you better understand the little bit of genetic coding that makes you, you!

DNA STANDS FOR DEOXYRIBONUCLEIC ACID.

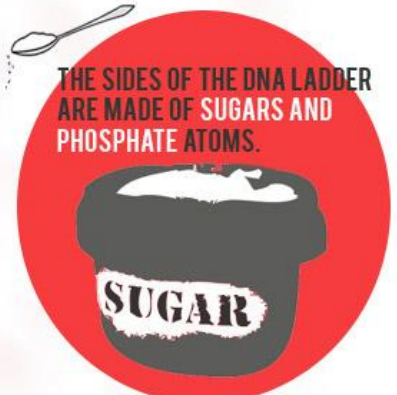
DNA IS FOUND IN ALL LIVING THINGS.



DNA was first isolated by Friedrich Miescher, who in 1869, discovered a microscopic substance in the pus of discarded surgical bandages that he called "NUCLEIN."

DNA has a double-helix structure like a twisted ladder. The steps of the ladder are bases...

ADENINE (A) IS A BASE.
THYMINE (T) IS A BASE.
CYTOSINE (C) IS A BASE.
GUANINE (G) IS A BASE.



THE SIDES OF THE DNA LADDER ARE MADE OF SUGARS AND PHOSPHATE ATOMS.

1 MILLION BASES (A.K.A. A MEGABASE) OF DNA SEQUENCE DATA IS ROUGHLY EQUIVALENT TO 1 MEGABYTE OF COMPUTER DATA STORAGE SPACE.

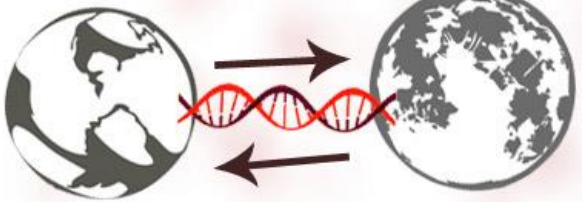
Our entire DNA sequence is called a genome... and there's an estimated

3,000,000,000

DNA bases in our genome.

A complete 3 billion base genome would take 3 GIGABYTES OF STORAGE SPACE.

IF YOU UNWRAP ALL OF THE DNA YOU HAVE IN ALL YOUR CELLS, YOU COULD REACH THE MOON **6000 TIMES.**



99.9% OF OUR DNA SEQUENCE IS THE SAME AS OTHER HUMANS'.

YOUR ASSIGNMENT

- For this assignment, I would like you to create an infographic titled "Interesting Facts About DNA".
- Your infographic should include a **MINIMUM** of **5** facts about DNA and include a picture for each fact.
- You can make it on any computer program you are familiar with OR you can write/draw it on your own.
- If you make it electronically, please email it to me! If you use paper/pencil method, turn it in. (kerry.moody@washk12.org)
- This assignment is out of 10 points and is due at the end of class.