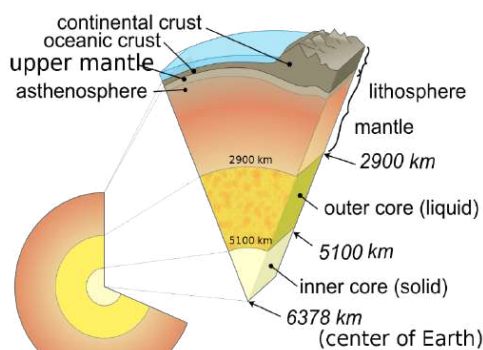


TRENDING NEWS:

1 Seismic data shows that the Earth's core is spinning the other way. Should we worry?

A recent study reports that the Earth's inner core has stopped spinning in the same direction as the planet and may have even started spinning in the opposite direction. This study fuels the debate among scientists on how exactly the Earth's inner core spins.

The Earth is divided into four layers: the inner core, the outer core, the mantle, and the crust. The innermost layer, the inner core, is a hot iron ball of the size of Pluto. This inner core is found around 5,000 kilometers (3,100 miles) below the surface of the Earth. The outer core is a 2,260 kilometers (1,400 miles)-thick, hot, liquid layer mostly made of nickel and iron. According to scientists, this inner core can spin by its own because it floats in the liquid metal outer core. Thus, the direction in which the inner core spins remains a topic of debate.



The four layers of Earth: the inner core, the outer core, the mantle, and the lithosphere (crust).

The recent study was published in the *Nature Geoscience* journal. In the study, scientists Xiaodong Song and Yi Yang observed records of the seismic waves from earthquakes over the last six decades. Seismic waves are vibrations made by earthquakes within the Earth or at the Earth's surface. Through their observations, they found that the Earth's inner

core stopped spinning in the same direction as Earth in 2009. Then, the Earth's inner core began to spin in the opposite direction.

Song and Yang believe that the Earth's inner core rotates back and forth like a swing compared to the Earth's surface. They also reported that the Earth's inner core changes the direction in which it spins approximately every 35 years. According to Song and Yang, the Earth's inner core changed its direction in the early 1970s, then again recently in 2009, and will change its direction again in the mid-2040s.

As of now, there is no information on whether the direction of the spin of the Earth's inner core has any effect on the Earth's surface. However, scientists have noted that this rotation of the Earth's inner core matches the Earth's length of day. Song and Yang believe that all of the four layers of Earth are somehow linked. Through their study, they wish to inspire other scientists to consider Earth as a united, dynamic system.

2 Humans Guess Gestures Made by Apes, Study Shows

As per a recent study in PLOS Biology, scientists state that humans and apes have common gestures used for communication. The study was led by Dr. Kirsty Graham of St. Andrews University in Scotland. According to the study, the use of gestures for communication is common between humans and other ape species.

Until now, scientists always assumed that a common method of communicating through gestures might exist in our last shared ancestor. However, the study led by Dr. Graham found evidence in support. The study was led conducted to understand the origin of language. It reports that our ancestors used gestures, and this was gradually used for communication.

The team of scientists watched apes for many years using video playback experiments.



The great apes include the bonobos, orangutans, gorillas, and chimpanzees.

They found that apes use more than 80 different motions to communicate with each other. These gestures together make a big vocabulary. For example, apes communicate with each other through messages like "groom me" with a long scratching gesture. The motion of a mouth stroke means "give me that food."

In the study, the trained scientists first had to know the meaning of each gesture themselves. Then, the videos were shown to human volunteers. It was seen if humans could understand the gestures used by apes for communication. Volunteers had to select from a multiple choice list of meanings for each gesture used. The scientists found that human volunteers could correctly guess the meaning for each gesture made by apes over 50% of the time. Rather, humans could guess the gestures almost instinctively.

According to Dr. Graham, these gestures could be understood by humans because there exists an ancient, common vocabulary of gestures for communication among all great ape species, including us. This study was certainly interesting, as the evolution of communication was better understood by scientists – involving humans and apes!

Science Everyday How Long Have Sharks Been Around?

It's quite hard to imagine a shark without conjuring up images of a scary predator swimming through the murky ocean hunting for its next prey. While some of these awe-inspiring creatures, like the great white, are known to be at the top of the food chain, most sharks take up space are located at different levels of the food chain.



Sharks are older than dinosaurs

Closely related to the sting ray and the chimaera, sharks turn up in various sizes. Sharks are really a kind of fish, but instead of bones, their skeleton is made up of cartilage!

Maybe the most surprising fact about sharks is how long they've lived on planet Earth!

How long have sharks been around?

The group of families we know as sharks includes some of the oldest families on Earth. While some families, like the velvet worms, outdate them, you'd be surprised to know that sharks are not only older than dinosaurs, but even trees!

Since sharks are cartilaginous, the only hard part of their body is their teeth. These teeth sink to the ocean floor as sharks grow out of them and remain as fossils that help us to understand the history of these animals. Turns out, the oldest fossilised teeth are over 410 million years old!

These teeth belonged to the species *Doliodus problematicus*. Of course, the oldest sharks don't look very "shark-like" by today's standards—while they did have the cartilaginous skeleton and a shark-like jaw and skull, they also had diamond-shaped scales and spines near their fins.

The first group that we might recognise as sharks, the *Cladoselache*, evolved 380 million years ago. They had the iconic body shape, the dorsal fins, and the forked tail that we attribute to sharks! Then, around 195 million years ago, sharks evolved their strong flexible protruding jaws.

You may have pieced together that the sharks had their origin nearly 450 million years ago! What that means is that these creatures have lived through four out of five of the big mass extinction events.

These mass extinction events played a huge role in shaping the climate of the planet and who lived on it. Despite it all, some lineages of sharks have managed to persist.

One such extinction event that took place around 359 million years ago led to the “golden age” of sharks. When nearly 75% of marine life got wiped out during the mass extinction event, several small lineages of sharks managed to survive and reproduce faster, which not only helped them persist but also led to a boom in the diversity of sharks! Talk about resilience!

Glossary

Cartilage: a strong, flexible connective tissue that protects your joints and bones. t

Mass extinction event: a widespread and rapid decrease in the biodiversity on Earth

Lineage: a continuous line of descent from ancestors.

Dorsal fin: a fin on the back.

STEM Challenge/ Science Experiment

Make a lolly stick domino

- **Material needed:** Lolly sticks
- **Step 1:**
Cross two sticks into an “x” shape. Let the stick on top be A and the stick on the bottom be B.
- **Step 2:**
Add stick C by tucking one end under the end of stick B. The new stick should go over stick A.
- **Step 3:**
Add another stick by tucking its end under Stick B and letting the rest lay over Stick C.
- **Step 4:**
Continue adding more sticks in this pattern. Patience is the key. The longer the chain, the greater the fun.



Did You Know?

There are more trees on Earth than stars in the Milky Way. NASA experts consider that the Milky Way galaxy has 100 billion to 400 billion stars. However, a study in 2015 puts a figure of 3.04 trillion for the number of trees on Earth.



Brain Teaser:

Can you make 100 by interspersing any number of pluses and minuses within the string of digits 9 8 7 6 5 4 3 2 1? You can’t change the order of the digits! So, what’s the least number of pluses and minuses needed to make 100?

Credit: Popular Mechanics

Answer to be published in the next edition

Previous edition answer:

If each of the seven houses has seven cats, then there are 49 cats total. From there, we just follow the pattern of multiplication all the way through this problem.

Cats: $7 \times 7 = 7^2 = 49$

Mice: $7 \times 7 \times 7 = 7^3 = 343$

Splet: $7 \times 7 \times 7 \times 7 = 7^4 = 2,401$

Grains: $7 \times 7 \times 7 \times 7 \times 7 = 7^5 = 16,807$

The total number of objects is simply

cats + mice + spelt + grain = $7^2 + 7^3 + 7^4 + 7^5 = 19,600$



Science Video:

Amazing Plasma Tornadoes on the Sun

At a distance of 93 million miles (150 million kilometers) from the Earth is the Sun – a 4.5 billion-year-old star at the center of our solar system. Without the Sun’s light and energy, life would not exist on Earth. Life is not present on the Sun itself due to its high temperature and radiation.

The Sun is mostly made of hydrogen and helium and is divided into many regions. From the inside to the outside, the regions of the Sun include the core, the radiative zone, the convection zone, the visible surface or *photosphere*, the *chromosphere*, the transition zone, and lastly the corona. The corona may be described as the growing outer atmosphere of the Sun.

The core is the hottest zone of the Sun. In the core, hydrogen fuses to form helium in a nuclear reaction. Energy from the core is carried outward by radiation through the radiative zones and the convection zones.

Finally, large bubbles of hot plasma move upwards towards the photosphere. The photosphere is considered the visible surface of the Sun and is the region that emits the most light as seen from Earth. The photosphere, chromosphere, and corona of the Sun together form the Sun's atmosphere

Material leaving the corona of the Sun at extremely high speeds is called the solar wind. This forms a large magnetic space around the Sun, which is known as the heliosphere. The heliosphere is so large that it extends past the orbit of the planets in our solar system. Space outside the heliosphere is called interstellar space. Our planet Earth also exists inside this heliosphere, which is the Sun's atmosphere.

The Solar Dynamics Observatory at NASA observes the Sun from space. The spacecraft constantly looks at the Sun's invisible magnetic field and how it makes charged gas, also known as plasma, form patterns. However, these patterns on the Sun's surface also appear as tornadoes. In February 2012, the SDO at NASA captured images of such rotating plasma tornadoes.

Scientists believe that plasma leaving the Sun is spinning because some of it moves towards Earth, while some of it moves away. If such a rotation is a reality, then it may be because of the numerous magnetic fields at the Sun's surface. Want to know exactly what the SDO at NASA captured? Watch this video to see amazing plasma tornadoes on the Sun!

[Scan QR code to see the video](#)



Quiz:

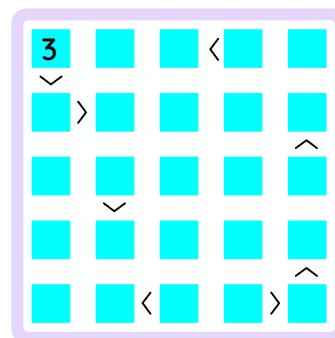
What is the average weight of an ostrich egg?

- A. 2 pounds C. 5 pounds
B. 3 pounds D. pounds

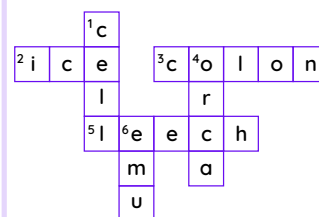
[Scan for more science trivia quiz](#)



Can you do a Futoshiki?



Previous edition Crossword Answer



Science in Depth

Why Is Mental Health Important?



Do you remember the last time you weren't feeling well? Maybe you scraped your knee, had a nasty stomach bug, or even caught the dreaded coronavirus! After a few days, when your body fights hard, you make your way to recovery! Sometimes it's simple to tell when you fall sick. What happens when you can't see what's wrong?

[Scan to know more](#)



STEM Career:

The Space Robotist Natalie Panek

Natalie Panek loves being a space roboticist. She's worked on Mars rovers, studied the impact of lunar dust on sensors, and even helped create robots that can repair satellites still in orbit. Natalie admits that her career probably isn't one that her younger self would have picked - but now that she is here, she has no interest in trading it.



[Scan to know more](#)



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