


To Touch the Sun

Jorge Cham, aka, PHD Comics, illustrates the daring mission of the Solar Parker Probe, which flew closer to the Sun than any previous spacecraft.

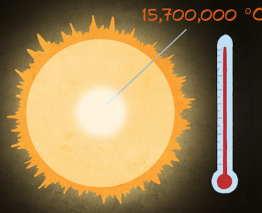
Jorge Cham

TO TOUCH THE SUN

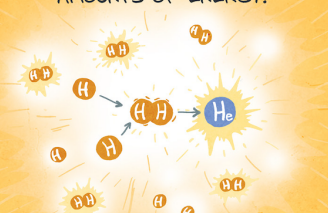


AT ITS CORE, THE SUN IS A TOASTY 15.7 MILLION DEGREES CELSIUS.

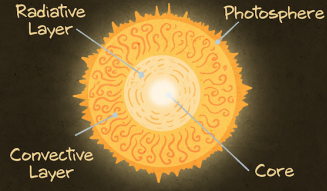
15,700,000 °C



THE INTENSE GRAVITY CAUSES HYDROGEN TO FUSE INTO HELIUM, RELEASING VAST AMOUNTS OF ENERGY.




THE RADIATION TRAVELS OUTWARDS, HUNDREDS OF THOUSANDS OF MILES, THEN ENTERS THE CONVECTIVE LAYERS OF THE SUN, WHERE CHURNING COLUMNS OF PLASMA CARRY THE HEAT TO THE SURFACE.



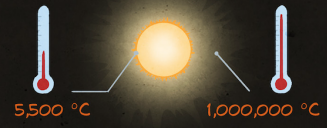
Radiative Layer
Photosphere
Convective Layer
Core

BUT THEN SOMETHING MYSTERIOUS HAPPENS.



WHILE THE SURFACE OF THE SUN IS AT 5,500 DEGREES, THE SUN'S ATMOSPHERE IS ACTUALLY HOTTER, REACHING TEMPERATURES OF UP TO 1,000,000 DEGREES.


WHY IS THE OUTSIDE OF THE SUN HOTTER THAN ITS SURFACE?



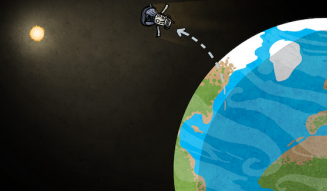
5,500 °C 1,000,000 °C

IT TURNS OUT, THERE'S STILL A LOT WE DON'T KNOW ABOUT HOW THE SUN WORKS.


TO LEARN MORE, WE NEED TO GET CLOSER TO IT.



IN 2018, THE PARKER SOLAR PROBE LEFT EARTH TO FLY CLOSER TO THE SUN THAN ANY HUMAN-MADE OBJECT HAS EVER DONE BEFORE.



BUT FLYING CLOSE TO THE SUN IS NOT AN EASY TASK.



AS YOU GET CLOSE, THE INTENSITY OF SUNLIGHT IS ASTRONOMICAL.

physics.aps.org
IT'S ALSO HARD TO GET TO THE SUN. NOT JUST BECAUSE THE SUN IS FAR, BUT BECAUSE THE EARTH IS MOVING SO FAST.

ANY SPACECRAFT LEAVING EARTH NEEDS TO SPEND HUGE AMOUNTS OF ENERGY TO SLOW DOWN ENOUGH TO FALL INTO A SMALLER ORBIT.