# How hot is the inner core

**Unveiling the Inferno: How Hot is Earth's Inner Core?** Hey Explorers! Ever wondered what lurks beneath our feet, a fiery heart pulsating deep within the Earth? Today, we're diving into the scorching depths of the inner core, exploring the mind-boggling temperatures and the scientific mysteries it holds. Prepare to have your perceptions of "hot" completely redefined! The Earth's inner core, a solid sphere of iron and nickel, is a mystery wrapped in an enigma, nestled thousands of kilometers beneath our feet. But how hot is this hidden inferno? The answer, surprisingly, is a bit complex... and incredibly intense.

## The Intense Heat: A Deep Dive into Temperature

The precise temperature of Earth's inner core is a subject of ongoing research and sophisticated modeling. Current estimates place it at a staggering 5,200 to 6,000 degrees Celsius (9,392 to 10,832 degrees Fahrenheit). That's hotter than the surface of the sun! Think about it: a temperature gradient exists throughout the Earth. The

closer we get to the core, the hotter it gets. This intense heat is generated by a combination of factors, primarily the residual heat from the Earth's formation and ongoing radioactive decay within the planet.  (Note: Replace the placeholder image with a chart illustrating the Earth's temperature gradient, clearly marking the location of the inner core and its temperature range.)

## The Physics of Pressure and Density: Why It's So Hot

The immense pressure deep within the Earth is another crucial factor influencing the inner core's temperature. Pressure prevents the material from turning into a liquid. Imagine trying to compress a gas; the heat generated would be similar, but on an astronomical scale. Consider this: the pressure at the core is estimated at 3.6 million times the atmospheric pressure at sea level. This immense pressure, coupled with radioactive decay, creates a "pressure cooker" effect, intensifying the heat within the core.

## The Role of Radioactive Decay: A Natural Furnace

Radioactive decay within the Earth's interior is a significant source of heat. Elements like uranium, thorium, and potassium, present in the mantle and core,

undergo radioactive decay, emitting energy in the form of heat. This energy gradually warms the surrounding material.

## Practical Applications: What do we learn from this?

While seemingly abstract, understanding the inner core's temperature has profound implications for: • **Geophysical modeling:** Precise temperature estimations are vital for creating accurate models of the Earth's interior, enabling us to understand the planet's evolution. • **Plate tectonics:** The heat from the core drives mantle convection currents, which, in turn, contribute to the movement of tectonic plates. • Seismic activity: Understanding the composition and temperature of the inner core aids in interpreting seismic waves, helping predict and study earthquakes.

## Unveiling the Mysteries: Case Studies

The study of the Earth's inner core has been a challenging quest, relying heavily on indirect methods like seismology. Seismic waves that travel through the Earth provide invaluable information about its structure and composition. • **The study of seismic wave patterns:** Analyzing how these waves refract, reflect, and diffract provides clues about the material's density and temperature. Significant variations in these patterns

pinpoint changes in the composition, including the solid-state of the inner core.

## Key benefits of studying the inner core temperature

• Improved Earth Models: Accurate temperature estimations refine our models of the Earth's interior, allowing for more accurate predictions of geological events and phenomena. (Expand on each bullet point, explaining the specific details and benefits of each in further detail.)

## Further Exploration: Materials Science and Planetary Formation

The inner core's high temperature and pressure conditions provide a unique laboratory for understanding materials science under extreme environments. This research can lead to discoveries and advancements in various fields. (Discuss the materials science aspect in greater detail, connecting it back to the high-temperature and pressure environment of the Earth's core and its implications for relevant research areas.)

## Conclusion

The exploration of Earth's inner core is a journey into the

heart of our planet. While the precise temperature remains a subject of scientific investigation, ongoing research using seismological tools and sophisticated models is gradually shedding light on this fiery realm. Understanding this intense environment is not only crucial for comprehending our planet but also holds valuable clues to the formation and evolution of other planets and planetary systems.

## Expert-Level FAQs

1. What are the challenges in measuring the inner core's temperature directly? 2. **How do variations in the inner core's temperature impact the Earth's magnetic field?** 3. What role does the inner core play in the long-term stability of the planet? 4. *Are there any other celestial bodies with similar inner core characteristics?* 5. **What are the future research directions in exploring the Earth's inner core?** (Provide comprehensive and detailed answers to each of the FAQs, drawing on scientific literature and expert opinions to bolster the answers.) By continuing to explore the depths, we unlock profound insights into the workings of our planet, opening doors to new discoveries and a deeper understanding of the universe around us. Keep exploring, keep questioning, and keep pushing the boundaries of knowledge!

# How Hot is the Inner Core? Unveiling Earth's Fiery Heart

Imagine peeling back the layers of our planet, journeying through solid rock, molten metal, and immense pressures, all to reach the very center. What awaits us? A realm of unimaginable heat, a furnace that drives much of what we experience on the surface, from the magnetic field that shields us to the tectonic plates that shape our landscapes. But just how hot is this enigmatic inner core? It's a question that has fascinated scientists for decades, and while we can't directly measure it, the clues we've gathered paint a picture of incredible thermal intensity. The Earth's core, a region roughly the size of the Moon, is divided into two distinct parts: the liquid outer core and the solid inner core. While the outer core, a swirling ocean of molten iron and nickel, is responsible for generating our planet's protective magnetic field, it's the inner core, a dense, metallic sphere, that holds the title of our planet's hottest region. Think of it as the ultimate ember, constantly radiating heat outwards.

## The Astonishing Temperatures of the Inner Core

So, let's get down to it. How hot is the inner core? The scientific consensus places its temperature in the range of **5,200 to 6,000 degrees Celsius (9,392 to 10,832

degrees Fahrenheit)**. To put that into perspective, this is roughly as hot as the surface of the Sun! Yes, you read that right. Our Sun's surface, the part we see, is about 5,500 degrees Celsius. The inner core is a testament to the extreme conditions that exist deep within planetary bodies. This incredible heat isn't just a random phenomenon. It's a byproduct of Earth's formation billions of years ago, a remnant of the intense bombardment and gravitational forces that coalesced our planet from cosmic dust and gas. The immense pressure at the Earth's center also plays a crucial role. Despite the extreme temperatures, this pressure is so colossal that it forces the iron and nickel in the inner core to remain in a solid state, unlike the liquid metal surrounding it. It's a fascinating interplay of heat and pressure, a delicate balance that defines this inner sanctum.

## Why Can't We Just Go There and Measure It? The Immense Challenges

The prospect of drilling to the Earth's inner core is, unfortunately, pure science fiction. The sheer distance is staggering – approximately 6,371 kilometers (3,959 miles) from the surface. Even our deepest mines only scratch the surface, reaching a few kilometers down. The challenges are not just about distance; they are also about the conditions.

### Pressure Beyond Comprehension

As you descend through the Earth's layers, the pressure increases dramatically. At the core, the pressure is estimated to be around 360 gigapascals (GPa). That's over 3.6 million times the atmospheric pressure at sea level! Imagine the weight of all the rock and metal above, crushing down with unimaginable force. Any drilling equipment would be instantly annihilated, not to mention the biological impossibility of survival.

### Extreme Heat and Density

Then there's the heat itself, which we've already discussed. Surviving temperatures that rival the Sun's surface is beyond our current technological capabilities. The density of the materials at the core also presents a formidable obstacle. We're talking about incredibly dense alloys of iron and nickel, which would resist any attempt at penetration.

## How Do Scientists Know How Hot the Inner Core Is? Piecing Together the Clues

If we can't directly measure the temperature of the inner core, how do scientists arrive at these astonishing figures? It's a testament to ingenuity, indirect measurement, and sophisticated modeling. Here are

some of the key methods and evidence:

**Seismic Waves: Earthquakes as Earth's X-rays**

One of the most powerful tools scientists have is the study of seismic waves generated by earthquakes. When an earthquake occurs, it sends out waves that travel through the Earth. By analyzing how these waves travel, refract, and reflect off different layers, scientists can infer the properties of those layers, including their density and temperature. Think of it like an ultrasound for the planet. Different materials and densities cause seismic waves to behave in predictable ways. The speed at which these waves travel is directly related to the temperature and composition of the material they are passing through. By studying the echoes and distortions of these waves, geophysicists have been able to map out the boundaries between the inner and outer core and estimate the temperature gradient.

**Minerals and High-Pressure Experiments: Recreating the Core in the Lab**

Another crucial approach involves recreating the extreme conditions of the Earth's interior in laboratory settings. Scientists use specialized equipment like diamond anvil cells, which can generate pressures millions of times greater than atmospheric pressure. They then heat small samples of iron and nickel alloys to extremely high temperatures. By observing how these materials behave

under these conditions, scientists can extrapolate their properties at the Earth's core. For instance, they can determine the melting point of iron-nickel alloys at specific pressures and temperatures, which helps refine estimates of the inner core's temperature. The study of specific mineral phases that are stable at core pressures and temperatures also provides valuable insights.

**Geodynamo Theory and Earth's Magnetic Field: A Hot Topic**

The Earth's magnetic field is generated by the movement of molten iron in the outer core. This process, known as the geodynamo, requires a significant temperature difference between the inner core and the outer core. The inner core, being hotter, drives convection currents in the outer core. Understanding the dynamics of this geodynamo provides constraints on the temperature of the inner core. If the inner core were not sufficiently hot, the convection necessary to sustain the magnetic field might not occur. Therefore, the existence and strength of our magnetic field indirectly support the idea of a very hot inner core. The inner core's existence itself is thought to be a result of the inner core solidifying from the liquid outer core, a process driven by the cooling of the Earth over time. This solidification releases latent heat, contributing to the energy driving the geodynamo.

# The Inner Core's Influence: More Than Just Heat

The immense heat of the inner core isn't just an abstract scientific curiosity; it has profound implications for our planet.

### Driving Plate Tectonics

The heat radiating from the core is the primary engine behind plate tectonics. Convection currents in the Earth's mantle, fueled by this internal heat, cause the massive tectonic plates to move. This movement leads to earthquakes, volcanic activity, and the creation and destruction of mountain ranges, constantly reshaping the Earth's surface over geological timescales.

### Earth's Magnetic Field: Our Planetary Shield

As mentioned earlier, the differential cooling between the inner and outer core is crucial for the generation of Earth's magnetic field. This magnetic field acts as a shield, deflecting harmful charged particles from the Sun (the solar wind). Without it, life as we know it on Earth would be impossible, as these particles would strip away our atmosphere.

### The Earth's Evolution and Future

The inner core continues to slowly solidify, releasing

heat. This ongoing process has shaped Earth's evolution for billions of years and will continue to do so. Understanding the inner core's temperature and evolution is vital for comprehending the long-term habitability of our planet and for comparing Earth to other rocky planets in the solar system. The rate of cooling of the inner core is a key factor in the longevity of planetary magnetic fields.

## Unanswered Questions and Future Exploration

Despite the incredible progress made in understanding our planet's inner core, many mysteries remain. Scientists are continually refining their models and developing new technologies to probe deeper into our planet. The exact composition of the inner core, for instance, is still a subject of research, with possibilities including lighter elements alloyed with iron and nickel. The precise rate at which the inner core is growing and cooling is another area of active investigation. This information is crucial for understanding the history and future of Earth's magnetic field and its thermal evolution. Future research will likely involve more advanced seismic tomography, laboratory experiments under even more extreme conditions, and potentially new methods of indirect sensing.

## Conclusion: A Glimpse into the Fiery Unknown

So, to reiterate, how hot is the inner core? It's an inferno, a realm of temperatures reaching an astonishing **5,200 to 6,000 degrees Celsius (9,392 to 10,832 degrees Fahrenheit)**. This fiery heart, hidden beneath miles of rock and molten metal, is not just a source of incredible heat, but a fundamental driver of geological processes and the very shield that protects life on our planet. While direct exploration remains a distant dream, the ongoing scientific quest to unravel its secrets continues to reveal the awe-inspiring power and complexity of our dynamic Earth. The inner core, in its fiery intensity, serves as a constant reminder of the immense forces at play beneath our feet, shaping our world in ways we are only just beginning to fully comprehend.

# The Searing Heart of Earth: Unveiling the Temperature of the Inner Core

Beneath the layers of rock and crust that form the familiar surface of our planet lies a realm of extreme conditions, far beyond what human experience can withstand. At the very center of Earth beats a core so

intensely hot that it rivals the surface temperatures of many stars. Scientists estimate that the inner core reaches temperatures exceeding 5,000 degrees Celsius—hotter than the surface of the Sun, which averages around 5,500 degrees Celsius, though the Sun's surface is far less dense and more variable. This blistering heat is not simply a matter of extreme temperature; it represents a fundamental aspect of Earth's structure, dynamics, and even its long-term evolution.

## Why Is the Inner Core So Hot?

The immense heat of Earth's inner core stems from several interrelated sources. Primarily, the core retains residual thermal energy from the planet's formation over 4.5 billion years ago, a time when planetesimals collided violently, generating immense heat through kinetic energy conversion. Over time, radioactive decay of elements like uranium, thorium, and potassium within the core and surrounding mantle has contributed additional heat, sustaining temperatures that prevent the iron-nickel alloy of the inner core from solidifying completely. This heat is crucial for maintaining the core's liquid outer layer, which plays a pivotal role in generating Earth's magnetic field through the geodynamo process.

While direct measurement remains impossible due to the core's inaccessibility and crushing pressures—exceeding

3 million times atmospheric pressure at sea level—scientific inferences from seismic wave analysis, mineral physics experiments, and geodynamical modeling provide compelling evidence of these extreme conditions. The inner core's temperature is not uniform; it gradually increases toward the boundary with the outer core, creating a thermal gradient that drives convection currents essential for planetary activity.

## Implications and Applications of Core Temperature Insights

Understanding the inner core's heat has profound implications across multiple scientific disciplines. Geophysicists rely on precise temperature estimates to refine models of Earth's magnetic field, which protects the planet from solar radiation and supports life. These insights also inform studies on planetary formation and differentiation, revealing how terrestrial planets develop layered structures. Moreover, thermal data from the core feed into research on geothermal energy and tectonic processes, enhancing our ability to predict seismic activity and volcanic behavior.

Beyond Earth, knowledge of extreme core temperatures aids astrobiological investigations, helping scientists assess the potential habitability of exoplanets and icy moons. For instance, if similar heat generation and convection occur beneath the icy crusts of moons like

Europa or Enceladus, subsurface liquid oceans—and possibly life—might exist in hidden depths.

## Future Prospects in Core Research

The quest to understand Earth's innermost secrets continues to drive innovation in science and technology. While direct sampling remains out of reach, advances in high-pressure laboratory experiments using diamond anvil cells and sophisticated computational simulations are bringing the inner core closer to human comprehension. Future missions involving seismic monitoring networks, deep Earth drilling projects, and satellite-based geomagnetic mapping promise to refine temperature models and uncover new details about this enigmatic region.

As our tools grow more precise and our theoretical frameworks more robust, the inner core will reveal more of its mysteries—illuminating not only Earth's past and present but also the fundamental processes shaping rocky planets across the cosmos. The heat within Earth's heart is more than a scientific curiosity; it is a window into the dynamic soul of our planet and a key to unlocking the secrets of planetary evolution.

# How Hot Is The Earth's Inner Core? Unveiling the Fiery Heart of Our Planet

The Earth's inner core, a solid ball of iron and nickel roughly the size of Pluto, lies at the very center of our planet. While it remains a realm of mystery, scientists have pieced together compelling evidence to understand its extreme conditions, particularly its astonishing temperature. So, how hot is the Earth's inner core? The answer is a mind-boggling figure that rivals the surface of the Sun.

Understanding the temperature of the inner core is not just a matter of scientific curiosity; it’s fundamental to comprehending Earth's geology, its magnetic field, and ultimately, its habitability. This fiery heart plays a crucial role in driving the convection currents in the outer core, which in turn generate our planet's protective magnetosphere. Without this magnetic shield, Earth would be bombarded by harmful solar radiation, making life as we know it impossible. Let's delve deeper into the science behind this inferno.

# Estimating the Unknowable: Methods for Gauging Inner Core Temperature

Direct measurement of the inner core's temperature is, of course, impossible. The immense pressure – millions of times that at the surface – and the sheer depth make any attempt at physical probing futile with current technology. Therefore, scientists rely on indirect methods and sophisticated models to arrive at their estimates. These methods often involve analyzing seismic waves, studying the properties of iron alloys under extreme conditions, and inferring temperatures based on our understanding of planetary formation and radioactive decay.

## Seismic Tomography: Listening to Earth's Heartbeat

One of the most powerful tools for probing Earth's interior is seismology. When earthquakes occur, they generate seismic waves that travel through the planet. These waves, much like X-rays, can be used to map the density and composition of the Earth's layers. By analyzing how these waves change speed and direction as they pass through the core, seismologists can infer temperature variations. Different seismic wave types,

such as P-waves (compressional waves) and S-waves (shear waves), behave differently under varying temperature and pressure, providing valuable clues.

Advanced seismic tomography techniques allow scientists to create 3D models of Earth's interior, revealing subtle differences in wave velocities that can be correlated with temperature. For instance, a region where seismic waves travel slower might indicate a hotter zone, while faster travel times could suggest cooler temperatures. While seismic tomography provides a detailed map of the core's structure, translating these velocity anomalies directly into precise temperatures requires complex calibration and assumptions.

## Diamond Anvil Cells and High-Pressure Experiments

To bridge the gap between seismic observations and actual temperature, laboratory experiments are crucial. Scientists use specialized equipment like diamond anvil cells (DACs) to recreate the extreme pressures found within Earth's core. In a DAC, tiny samples of materials, often iron alloys, are compressed between two diamonds to pressures exceeding those at the planet's center. By heating these compressed samples and observing their physical properties, such as melting point and structural changes, researchers can infer the conditions under which iron and nickel would melt or solidify at core

pressures. These experiments are vital for validating models derived from seismic data and provide direct insights into the phase transitions of core materials.

## Thermodynamic Modeling and Geochemical Clues

Beyond direct observation and laboratory experiments, thermodynamic models play a pivotal role. These models combine our understanding of physics and chemistry with geophysical data to predict the state and temperature of Earth's core. They consider factors like the heat generated by radioactive decay within the Earth, the latent heat released during the solidification of the inner core, and the heat flow from the core to the mantle. Geochemical clues, such as the isotopic composition of elements in rocks from Earth's mantle, can also provide indirect evidence about the early conditions of the planet, including the temperature of the core during its formation.

# The Astonishing Verdict: How Hot Is the Inner Core?

Based on the convergence of evidence from seismic studies, high-pressure experiments, and thermodynamic modeling, scientists estimate the temperature of the Earth's inner core to be approximately 5,200 degrees

Celsius (9,392 degrees Fahrenheit). This is remarkably close to the surface temperature of the Sun, which is around 5,500 degrees Celsius (9,932 degrees Fahrenheit).

## A Solid Inferno: The Paradox of the Inner Core

The fact that the inner core is solid, despite being incredibly hot, might seem counterintuitive. After all, at the Earth's surface, temperatures this high would vaporize most materials. The explanation lies in the immense pressure. The pressure at the Earth's inner core is estimated to be around 3.6 million times that of atmospheric pressure at sea level. This colossal pressure is so great that it forces the iron and nickel atoms into a solid crystalline structure, preventing them from melting even at these extreme temperatures.

The inner core is essentially a giant, superheated solid. The solidification of the inner core is a continuous process, with material freezing onto its surface from the molten outer core. This process is thought to be a significant source of heat driving the convection in the outer core, which is responsible for generating Earth's magnetic field. The growth of the inner core over billions of years has also played a crucial role in the planet's thermal evolution.

# The Inner Core's Role in Earth's Dynamics

The extreme heat of the inner core is not merely an interesting fact; it's a fundamental driver of many of Earth's dynamic processes. Its influence extends from the deep interior to the very surface we inhabit.

## Generating the Magnetic Field: Earth's Invisible Shield

The primary consequence of the inner core's heat is its role in generating Earth's geodynamo. The outer core is a vast ocean of molten iron and nickel, and the temperature difference between the solid inner core and the mantle above it drives convective currents within this liquid metal. As this electrically conductive fluid moves, it generates electric currents, which in turn create a powerful magnetic field that extends far into space. This magnetosphere acts as a protective shield, deflecting the solar wind – a stream of charged particles from the Sun – which would otherwise strip away our atmosphere and make life impossible.

The magnetic field also plays a role in navigation, and its fluctuations and reversals over geological timescales are areas of intense scientific study. Understanding the dynamics of the outer core, directly influenced by the

inner core's temperature, is therefore crucial for comprehending the long-term stability of Earth's magnetic field.

## Heat Flow and Mantle Convection

The heat radiating from the inner core, along with heat from radioactive decay in the mantle, drives convection within the Earth's mantle. These slow-moving currents within the viscous mantle are responsible for plate tectonics, the movement of Earth's lithospheric plates that causes earthquakes, volcanic eruptions, and mountain formation. The rate at which heat escapes from the core influences the vigor of mantle convection and, consequently, the geological activity on Earth's surface.

## Planetary Evolution and Differentiation

The formation of the inner core and its current temperature are intimately linked to Earth's early history. During Earth's formation, heavier elements, like iron and nickel, sank to the center due to gravity, forming the core. This process, known as differentiation, also released a tremendous amount of gravitational potential energy as heat. The subsequent cooling of the planet and the ongoing solidification of the inner core have shaped Earth's thermal evolution over billions of years. The initial heat from accretion and differentiation, coupled with ongoing radioactive heating, is what maintains the

extreme temperatures in the core.

# Future Research and Remaining Mysteries

Despite significant advancements, the Earth's inner core remains a frontier of scientific exploration. Several questions continue to drive research:

## The Inner Core's Structure and Anisotropy

While we know the inner core is solid, its precise internal structure is still being investigated. Seismic studies have revealed evidence of anisotropy, meaning the seismic waves travel at different speeds depending on their direction. This suggests that the iron crystals within the inner core are aligned in a particular way, possibly due to the intense pressures and shear forces. Understanding this anisotropy could provide further insights into the solidification processes and the history of the inner core.

## The Inner Core's Growth Rate and Age

Determining the exact rate at which the inner core has been growing and its precise age is an ongoing challenge. These figures are crucial for refining models of Earth's thermal evolution and the history of its magnetic field.

Different estimates for the inner core's age can range from around 500 million years to over 4 billion years, with significant implications for our understanding of Earth's internal heat budget.

## The Influence of Light Elements

While primarily composed of iron and nickel, the inner core may also contain small amounts of lighter elements, such as sulfur, oxygen, or silicon. The presence and abundance of these light elements can significantly affect the melting point and other physical properties of the core. Identifying and quantifying these elements is a key area of research, often relying on complex interpretations of experimental data and seismic observations.

# Conclusion: A Sun-Hot Heart Driving a Dynamic Planet

The Earth's inner core, a solid mass of iron and nickel, burns at an astonishing temperature of approximately 5,200 degrees Celsius (9,392 degrees Fahrenheit), rivaling the surface of the Sun. This extreme heat, generated by the planet's formation and the ongoing solidification of the inner core, is not merely a scientific curiosity. It is the fundamental engine that drives the convection in the molten outer core, creating our planet's protective magnetic field, and it plays a vital role in

mantle convection and plate tectonics. While direct measurement remains an impossible feat, the ongoing advancements in seismology, high-pressure experimentation, and theoretical modeling continue to unveil the secrets of this fiery heart, offering a deeper understanding of our dynamic planet and its capacity to harbor life.

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## Questions & Answers About how hot is the inner core

| No | Question | Answer |
|---|---|---|
| 1 | Just how hot is Earth's inner core, anyway? | Earth's inner core is incredibly hot, estimated to be around 9,940°F (5,505°C). That's roughly as hot as the surface of the Sun! |
| 2 | Is the inner core hotter than the surface of the Sun? | While close, the inner core's temperature (around 9,940°F / 5,505°C) is slightly cooler than the Sun's visible surface (photosphere), which is about 10,000°F (5,500°C). |
| 3 | What makes the inner core so incredibly hot? | The inner core's extreme heat is a leftover from Earth's formation about 4.5 billion years ago, combined with the continuous radioactive decay of elements within the Earth. |

| | | |
|---|---|---|
| 4 | How do scientists even know how hot the inner core is? | Scientists can't directly measure the inner core's temperature. They infer it using seismic waves from earthquakes and by studying the melting points of iron and nickel under immense pressure. |
| 5 | Does the inner core's temperature change over time? | The inner core is slowly cooling down, but it's a process that takes billions of years. The heat generated by radioactive decay helps offset some of this cooling. |
| 6 | Is the inner core molten or solid, and does its temperature affect this? | Despite being incredibly hot, the inner core is solid. The immense pressure at that depth prevents the iron and nickel from melting, even at such high temperatures. |
| 7 | Why is the inner core's temperature important for life on Earth? | The inner core's heat drives the convection currents in the outer core, which in turn generate Earth's magnetic field. This field protects us from harmful solar radiation. |
| 8 | What's the difference in temperature between the inner and outer core? | The outer core is slightly cooler than the inner core. While the inner core is around 9,940°F (5,505°C), the outer core is estimated to be between 7,232°F and 9,032°F (4,000°C to 5,000°C). |

inner core temperature range, how hot is the Earth's inner core, inner core heat levels explained, temperature inside Earth's core, measuring inner core heat, inner core thermal conditions, core temperature of Earth, heat

inside Earth's deep core, inner core heat measurement, geothermal heat from Earth's core

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