

So we talked about the  
landforms and things on  
Earth's surface, but what  
about things below??

Layers of the Earth!

# Explore more!

1.

[Phys.org](https://www.phys.org)

Good detailed description of the reason behind the different layers

2.

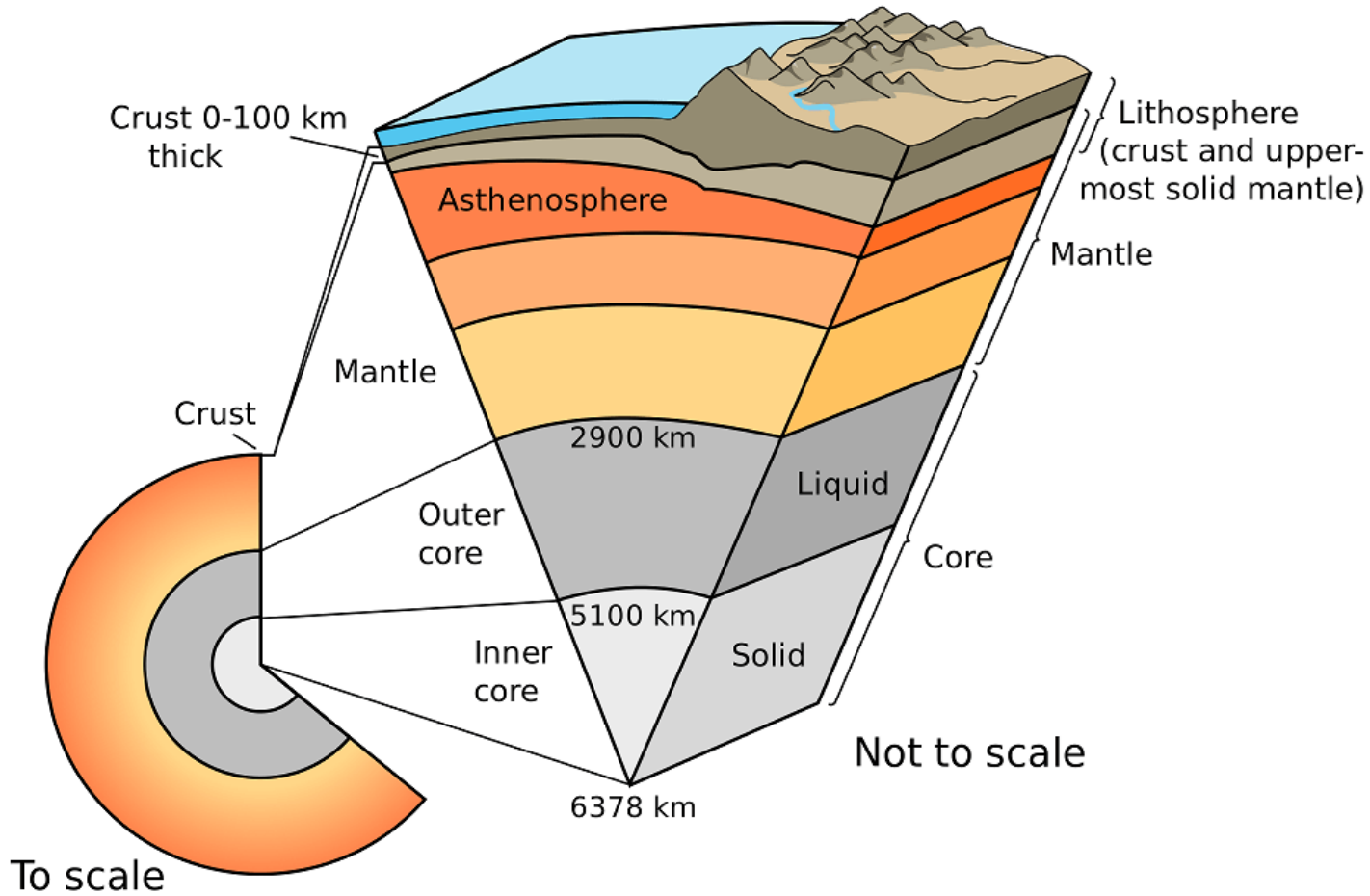
[USGS.gov](https://www.usgs.gov)

The USGS site about the layers of the Earth

3.

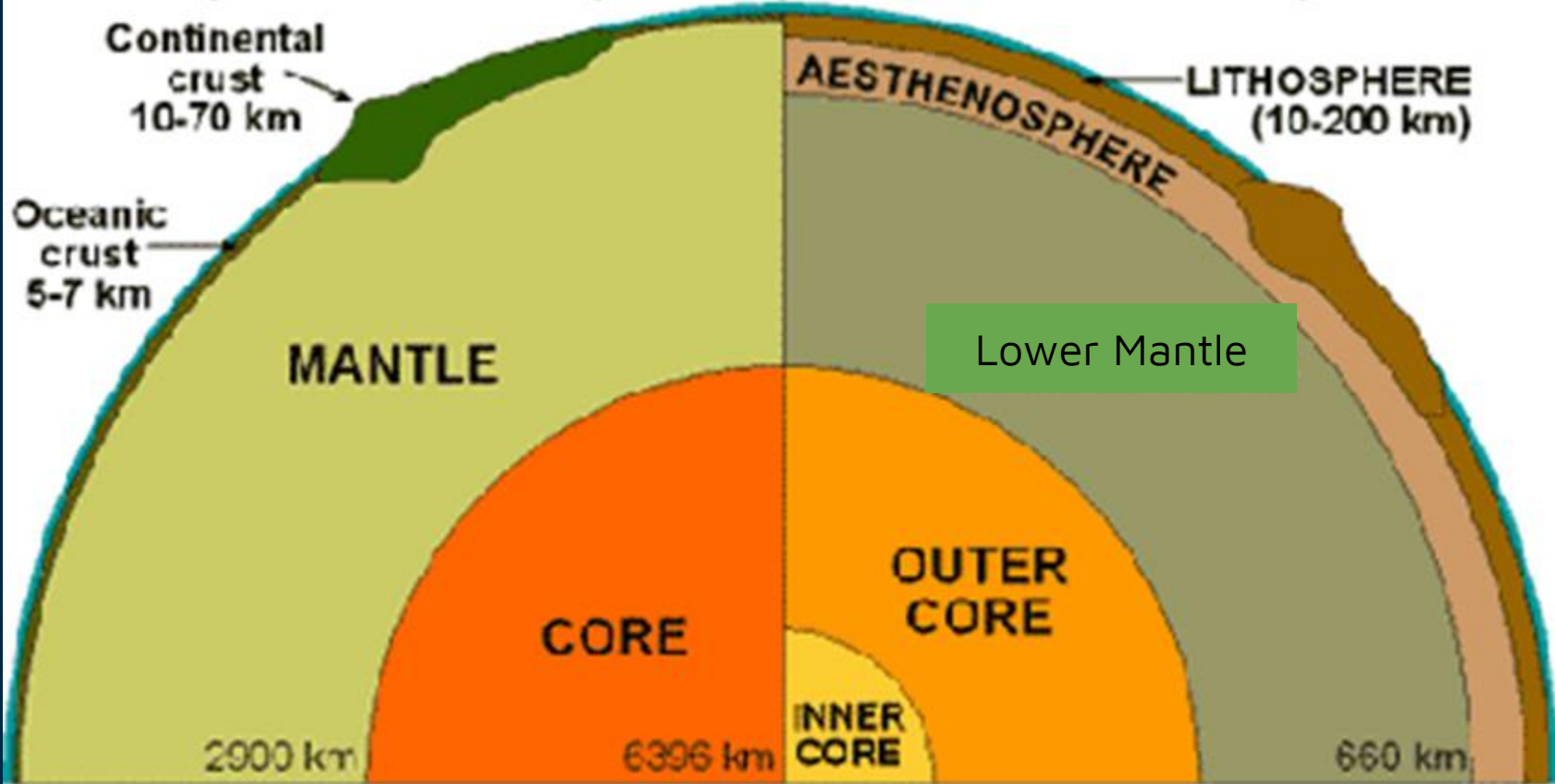
[Nat Geo Sites](https://www.natgeo.com)

Info on the [crust](#), [mantle](#), and [core](#)



# Compositional Layers

# Mechanical Layers

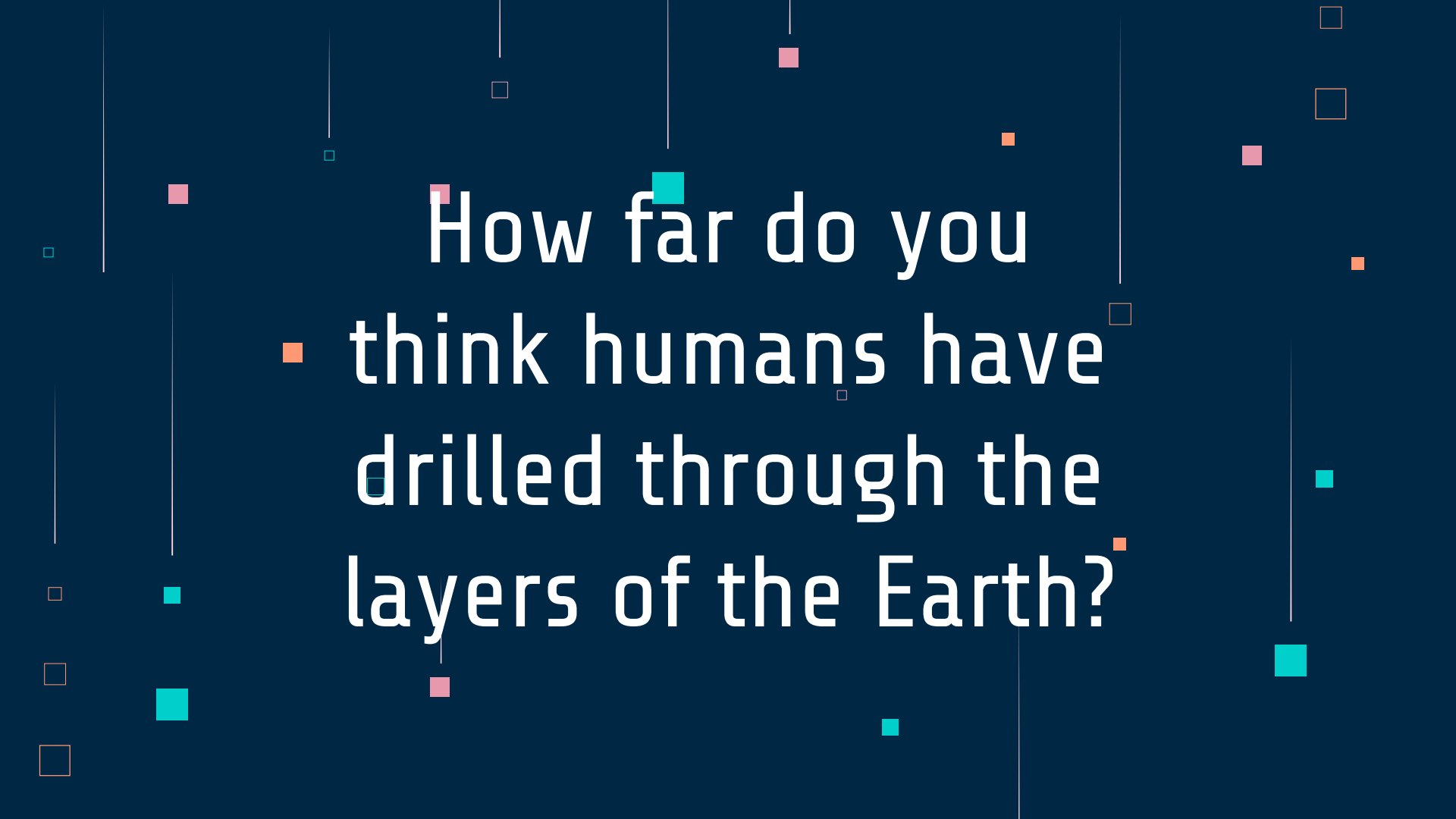


# THE EARTH



# WHY DOES EARTH HAVE LAYERS?



The background is a dark blue gradient. It features a collection of small, scattered squares in various colors including cyan, pink, orange, and light blue. Some of these squares are connected to thin, vertical white lines that extend towards the top and bottom edges of the frame. The overall aesthetic is modern and minimalist.

How far do you  
think humans have  
drilled through the  
layers of the Earth?

# Drilling

<https://www.youtube.com/watch?v=kJyhTp4p7PU>

<https://www.vox.com/unexplainable/22276597/project-mohole-deep-ocean-drilling-unexplainable-podcast>

<https://www.npr.org/2011/03/25/134855888/Drilling-To-The-Mantle-Of-The-Earth>



# Kola Superdeep Borehole

Started in 1965 but discontinued in 1995, this project is in Russia and reached a depth of 40,230 feet (which is 7.619 miles)

Even with all of our technology, this is still the deepest hole in Earth.



# Compositional Layering

## Crust

Made up of the continental crust and oceanic crust. Thin and brittle so it is easily broken.

## Mantle

The thickest layer with a rigid part at the top and bottom with a less rigid part in the middle.

## Core

Made up of two parts that is a liquid, moving outer part and a solid inner part.

# Mechanical Layering

## Lithosphere

Crust and upper part of the mantle and is rigid

## Asthenosphere

Middle part of the mantle that is hotter and less rigid so it kind of bends a bit

## Lower Mantle

Bottom part of the mantle that is back to being rigid and is even warmer

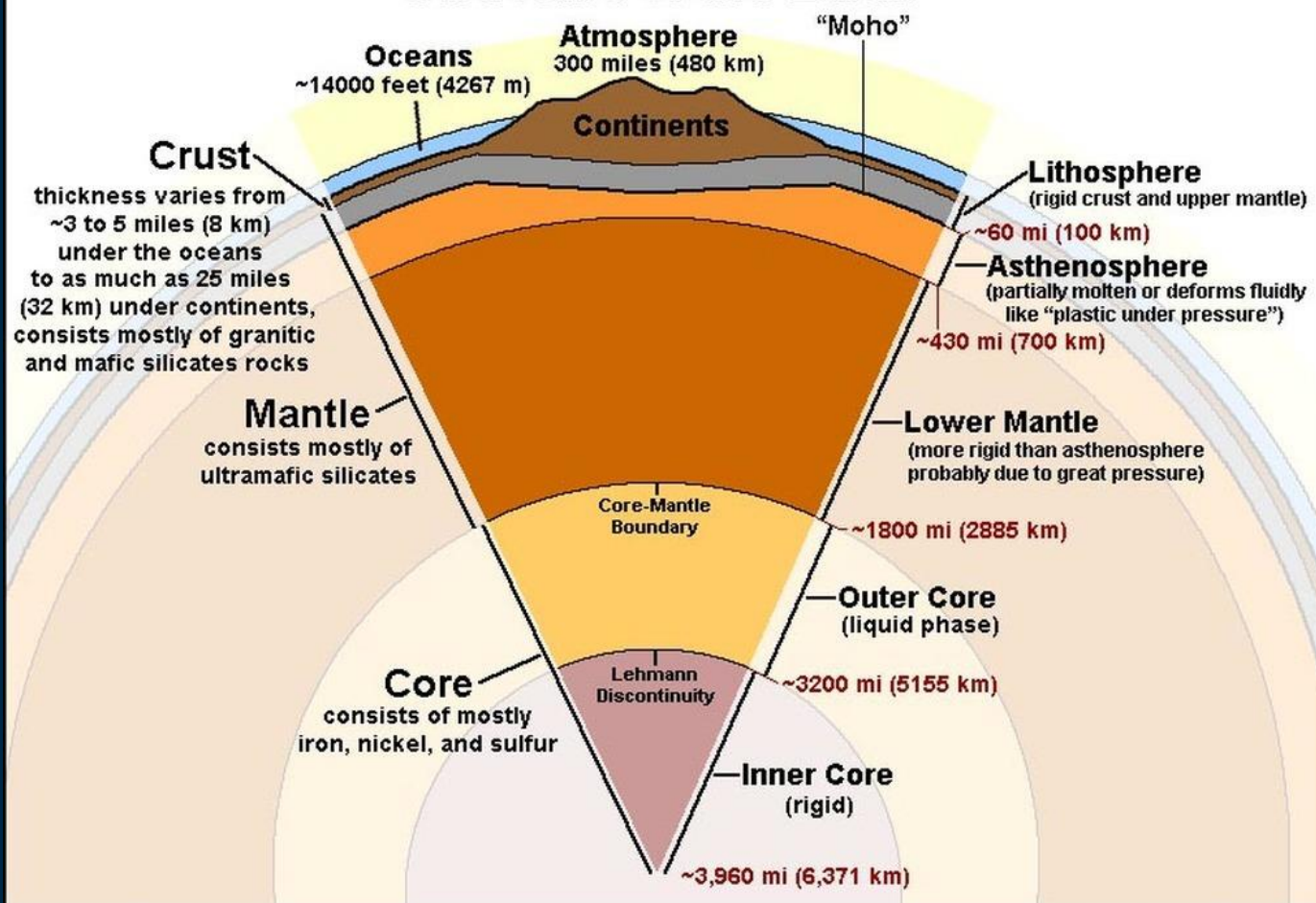
## Outer Core

Liquid iron and nickel which moves due to convection currents and causes the magnetic field

## Inner Core

Solid iron and nickel even though it is REALLY hot

# Structure of the Earth



How can a  
cupcake help us  
understand the  
layers of the  
Earth?





# Your Turn!

How can you model the  
layers of the Earth?

# Modeling Project

Your job is to create something to model the layers of the Earth. How do you do this is up to you, but I am grading you on three things:

1. You created something and labeled either the compositional layers of the Earth or the mechanical layers of the Earth (or, for a challenge, you can use both in the same model!)
1. You explained each of the layers you have included
2. Your model is unique and interesting

This will be graded as an assessment grade so do your best!







The background is a dark blue gradient. It features a collection of small, scattered squares in various colors: light blue, pink, orange, and white. Some squares are solid, while others are hollow. Thin white vertical lines of varying lengths are also scattered across the background, some extending from the top edge. The word "Questions?" is centered in a large, white, sans-serif font.

Questions?

The background is a dark blue gradient. It features several vertical white lines of varying lengths and positions. Scattered throughout are small squares in various colors: light blue, pink, orange, and cyan. Some squares are solid, while others are hollow outlines.

# Earth's Inner Core is Growing Lopsided!

Article [here](#)



# Wrap Up

Describe the layers of the Earth and how we know about these layers.