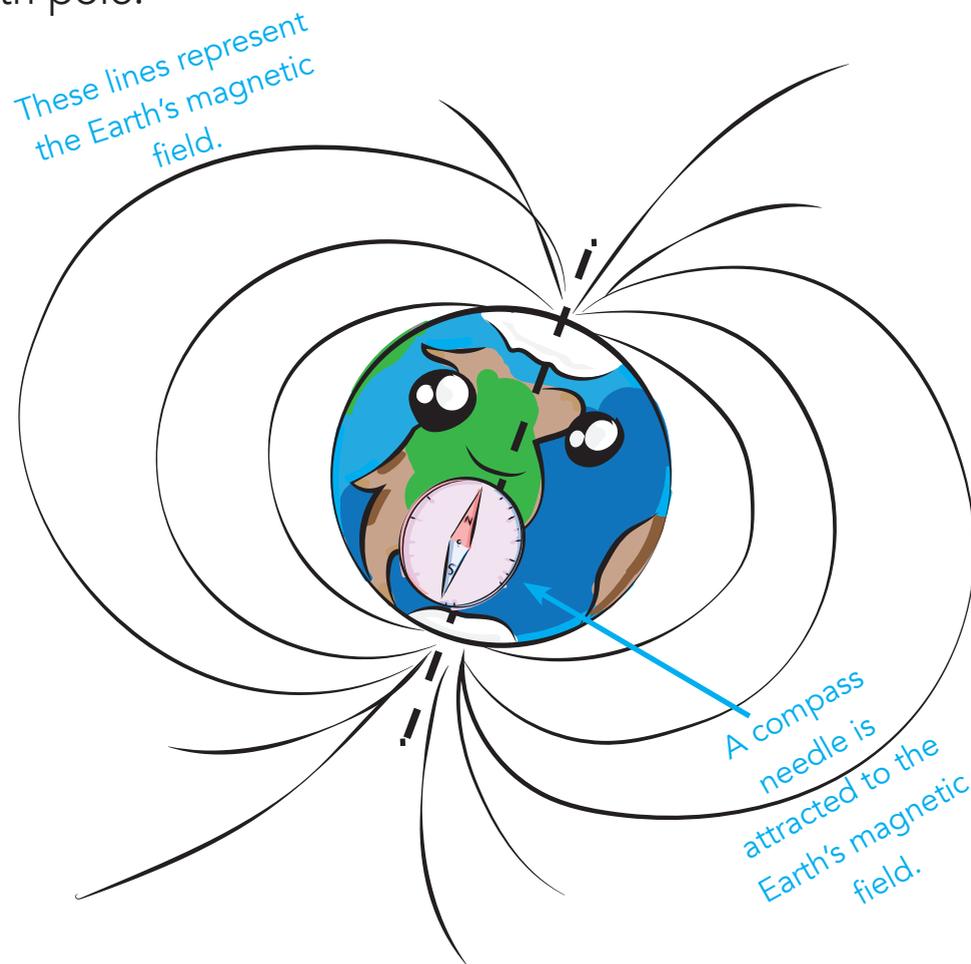


These pages are taken from the G3 "The Magnetic World Around Us" journal.



## The Earth is a Gigantic Magnet

Did you know that the Earth is a gigantic magnet?  
Yes! The Earth has a magnetic field. Just like any other magnet, the Earth has a magnetic south and a magnetic north pole.



So, what gives the Earth its magnetic field? If we dug a tunnel straight to the center of the Earth we would find the answer. The center of the Earth is called the core. The core is very hot and is even fluid like in some areas. The core is made up of magnetic metals such as iron and nickel. The constant spinning and swirling of metals happening near the earth's liquid outer core is what creates earth's magnetic field.

## The Needle of a Compass is a Magnet

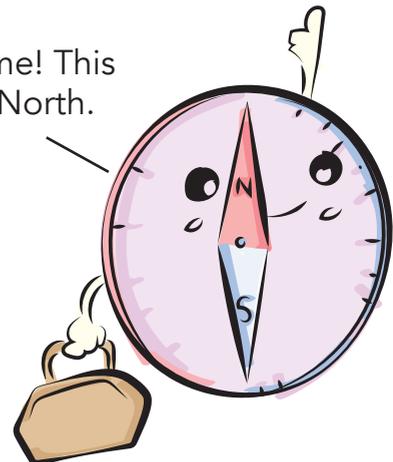
A **compass** helps people figure out which way they are traveling. A compass needle is a magnet that can spin on a pin. A compass helps you find the direction "North" using its magnetic needle to point to the North.



*The needle of a compass is a magnet.*

The magnetic needle of a compass  is attracted to the Earth's magnetic field. Remember we learned that opposite magnetic poles attract? The north pole of a compass needle is attracted to Earth's Magnetic South Pole.

Follow me! This way is North.



## Earth's Magnetic Field Protects Us

Life on Earth wouldn't be possible without the light and energy we get from the Sun, however, too much sun exposure isn't good for us either. Storms on the surface of the Sun release harmful energy. Thankfully, Earth's magnetic field acts like a shield to protect us from these harmful solar rays while still letting light and heat to come in.



*This picture is a model from NASA depicting the harmful solar rays (radiation) that come towards the Earth. The Earth's magnetic field (drawn with orange and blue lines) deflect this radiation.*

## Earth's Magnetic Field Makes the Northern Lights

Not only does Earth's magnetic field protect us, it also causes the Northern Lights. Near the North and South Pole, huge streams of colors burst in the sky. Isn't it beautiful?



*This is a real picture of a phenomenon called the "Northern Lights". If you are near the North or South poles you can see them in the night sky.*

These colorful lights in the sky only happen near Earth's poles because microscopic, high energy particles from the Sun are attracted to Earth's magnetic field. The magnetic field guides the particles to Earth's poles where they collide and release bursts of energy that create the colorful lights.