Did you know that your weight is different depending on where you are on the surface of the Earth? While the Earth has an average gravitational force, different locations on Earth have gravitational forces that are larger or smaller than average. This is because each location has more or less mass than the average.

Gravity is a physical force of attraction between objects. Objects with a small mass have a weak gravitational force while those with a large mass have a strong force.

You are held down to the Earth’s surface because it has a strong gravitational force. You actually exert a gravitational force on the Earth, but because your mass is many times smaller than the Earth’s mass, your pull is much less than the Earth’s.

Gravity is measured as how fast objects accelerate towards each other. The average gravitational pull of the Earth is 9.8 meters per second squared (m/s²).

The Earth is made of different substances like air, rock, and water. These substances have a different amount of mass in a certain amount of space (density). For example, rock has a higher density than air.

These differences in gravity are tiny so scientists have to use very sensitive satellites to measure differences around the world. These satellites can even detect dense features deep within the earth that increase the gravitational pull at the surface.

Construct the globe and use the key below to see how gravity varies around the world. Find a region with very high gravity. What features in that region might make the gravitational force stronger than average?
Cut out the three pieces of the Earth to assemble as a globe. Use the tabs on the sides to glue slices to each other or connect them using tape.

Be sure to cut out the tabs as well!

Each dashed line equals 20° of latitude or longitude.
Piece 2

Attach piece 1 here

Attach piece 3 here
Attach piece 1 here →

Attach piece 2 here