



Planet Shape- Teacher's Notes

How planets and other objects in the Solar System get their shape

Both stars and planets appear round or more correctly spheroidal. They spin or rotate in the same direction as the original dust cloud from which they formed.

Why can't we say that the Earth is round? **The Earth has three dimensions and so must be described in all three. "Round" only describes a two dimensional shape.**

Note

You may remember how in Year Three we noticed if a ship was sailing towards you from over the horizon only the topmost parts will appear at first but gradually as it gets closer more of the lower parts of the ship become visible.

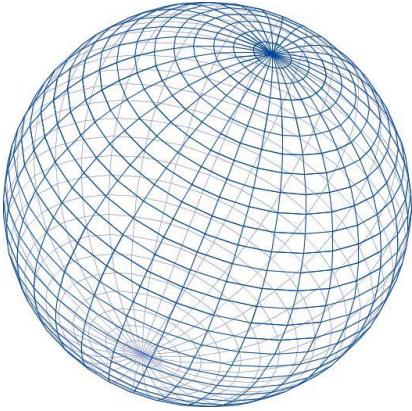
Moons, asteroids and some dwarf planets can be very unevenly shaped. Massive bodies are so "heavy" that gravity pulls all material close to the center of the spinning mass. ANU (Australian National University) astronomers have calculated that the borderline between taking a spherical shape and an irregular shape is a diameter of 600 km. If the body is solid rock (such as asteroids inhabiting the Asteroid Belt between Mars and Jupiter) gravity will eventually pull it into a spherical shape. In detail the surface may have mountains, and valleys but in general it is spherical. If the object is made of frozen gas, such as some planet's moons or comets from the outer edges of our solar system, they are easier to compress and will still remain spherical until they are less than 600km across. Because the rock keeps spinning however, over time it takes on a slightly flattened shape known as an oblate spheroid.



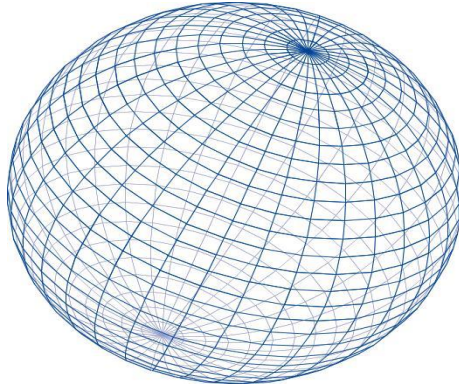
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Sphere



Oblate spheroid

Our Earth is a slightly flattened sphere. The distance from Earth's centre to the Equator is 6,378km whereas the distance from its poles to the Equator is 6,357km. 21km makes all the difference.

What shape are these heavenly bodies?

Materials

- Access to the Internet or astronomy books

Method

Collect data on these objects in our solar system, then decide what shape they are liable to be.

Name	Made of	Location	Diameter (km)	Shape
Ida	Rock	Asteroid Belt	58	Uneven & elongated like a potato
Mercury	Rock	Planet closest to Sun	4,879	Sphere



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Name	Made of	Location	Diameter (km)	Shape
Ceres	Rock	Asteroid Belt	940	Oblate spheroid
Halley's comet	Frozen gas and dust	Orbits Earth every 17,000 years	16 X 8	Elongate
Uranus	Gas Giant	Second furthest out planet	51,118	Sphere



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