

Continentes and Oceans

The Earth - Shape and Size

Shape of the Earth

Pythagoras (572-500 B.C.), a Greek philosopher and mathematician, was among the first to suggest that the Earth was shaped like a globe.

The Earth is not flat

1. If the Earth were a flat disc, then the rising Sun would have been seen at all places at the same time. But this does not happen. Places in the east see the rising Sun earlier.
2. When a ship approaches land, its funnel or mast is seen first and then the hull. If the Earth had been flat, the whole ship would have been seen at the same time.

The Earth is a sphere

1. The Earth is rarely oriented in the same position during successive eclipses but it always casts a circular shadow, thus proving that the Earth is a sphere. A sphere is the only solid body that will always cast a circular shadow.
2. At the North Pole, the Pole Star can always be observed at 90 degrees in the sky, since the star lies in the line with the axis of the Earth.
3. As one travels southwards, the angle of Pole Star decreases.
4. At the Equator the angle becomes zero degree.
5. This observation proves that the path of travel is an arc of a circle.
6. The Sun, Moon and all the heavenly bodies appear to be spherical when viewed from different positions. It seems logical to conclude that the Earth is no exception.
7. The photographs of the Earth taken from the space prove beyond any doubt that the Earth is a sphere.

The Earth as an Oblate Spheroid

1. Refined measurements of the Earth have proved that the true form of the Earth resembles a sphere that has been compressed at the poles and made to bulge at the Equator. This form is known as an oblate spheroid.

2. The various factors which make the earth suitable for
3. life to evolve and survive are
4. The earth has all the essential elements like carbon (in the form of C₀₂), hydrogen (H₂), nitrogen (N₂) and oxygen (O₂) which act as building blocks for the origin of life.
5. The earth is neither too hot nor too cold. It has the right temperature range for carrying out the life-sustaining chemical reactions.
6. The earth has a lot of water in the form of lakes, rivers and oceans for the growth and survival of life.
7. The earth has enough oxygen gas in its atmosphere for the survival of living beings through breathing.
8. The earth has a protective blanket of ozone layer high up in its atmosphere to save life from harmful ultraviolet radiations coming from the sun.

Oceania

Australia with New Zealand, Tasmania, New Guinea and the Pacific Islands (Micronesian, Melanesian and Polynesian Islands) is called Australasia by some geographers while some others call it "Oceania", which includes proximate islands (Caribbean countries etc.).

Oceans on The Earth

There are four oceans. In order of their size, they are : Pacific Ocean, Atlantic Ocean, Indian Ocean and Arctic Ocean.

Pacific Ocean

1. The explorer Ferdinand Magellan, who circumnavigated the Earth, named the ocean "Pacific" meaning calm or peaceful.
2. The Pacific Ocean (Area : 166,240,000 sq. km.) is the largest ocean of the world.
3. It is the deepest ocean with an average depth of 4,200 m.
4. The Mariana Trench is the world's deepest trench with a depth of 11,033 metres (36,201 feet).
5. Most of the islands of this ocean are of volcanic or coral origin.

Atlantic Ocean

1. The Atlantic Ocean (Area : 86,560,000 sq. km.) is the second largest ocean in the world
2. Its name is derived from Atlas, a Titan (giant) in Greek mythology.
3. The Atlantic Ocean has the longest coastline.
4. The Atlantic Ocean is the busiest ocean for trade and commerce since its shipping routes connect the two most industrialized regions, namely Western Europe and N.E. United States of America.
5. The Atlantic Ocean was formed millions of years ago when a rift opened up in the Gondwanaland and the continents of South America and Africa separated. The separation continues even today and the Atlantic Ocean is still widening.
6. The continental islands of Newfoundland and British Isles are the major ones.
7. Volcanic islands are fewer and they include those of Cuba, Jamaica and Puerto Rico. Iceland is the largest island of volcanic origin.

Indian Ocean

1. The Indian Ocean (Area : 73,430,000 sq. km.) is the only ocean named after a country.
2. The Indian Ocean is deeper than the Atlantic Ocean.
3. It contains numerous continental islands, Madagascar and Sri Lanka are being the largest ones.
4. Some of the islands of volcanic origin are those of Mauritius, Andaman and Nicobar, Seychelles, Maldives and Lakshadweep are of coral origin.

South Indian Ocean

1. **Warm currents** : 1. South Equatorial 2. Mozambique 3. Madagascar 4. Agulhas.
2. **Cool Currents** : 1. Antarctic drift 2. West Australian currents.

Arctic Ocean

1. The Arctic Ocean (Area : 13,230,000 sq. km.) is the smallest of all the oceans.

2. It lies within the Arctic Circle, hence the name Arctic Ocean.
3. The North Pole lies in the middle of the Arctic Ocean.
4. Most of the parts of Arctic Ocean remains frozen with thick ice for most of the days every year.
5. It is the shallowest of all oceans, with an average depth of 1,500 m.
6. It has the least salinity of all the oceans. It has a salinity of 20 unit per thousand.

Ocean Currents

1. The flow of a large amount of water in a definite direction with a great intensity is known as Ocean Current.
2. Ocean Currents are of two types-Hot and Cold.

Hot Currents

1. The currents flowing from tropical zones of lower latitudes to higher temperate and sub polar zones are known as hot water currents.

Cold Currents

1. The currents flowing from higher latitudes to lower latitudes are known as cold water currents.
2. The only exception to the conduction of ocean currents is found in the Indian Ocean. The flow of currents changes here with a change in the direction of the Monsoon Winds. The hot currents flow towards cooler oceans and the cold currents flow towards the warmer oceans.