

# Earth Planet Sciences

## 1.0 What Is Physical Geography?

Physical geography encompasses the geographic tradition known as the earth sciences tradition.

### Definition of Physical Geography

Physical geographers look at the landscapes, surface processes, and climate of the earth -- all of the activity found in the four spheres (the atmosphere, hydrosphere, biosphere, and lithosphere) of our planet.

### Elements of Physical Geography

Physical geography consists of many diverse elements. These include: the study of the earth's interaction with the sun, seasons, the composition of the atmosphere, atmospheric pressure and wind, storms and climatic disturbances, climate zones, microclimates, hydrologic cycle, soils, rivers and streams, flora and fauna, weathering, erosion, natural hazards, deserts, glaciers and ice sheets, coastal terrain and the ecosystems.

### Why Physical Geography Is Important

Knowledge of the physical geography of the planet is important because the natural processes of the earth affect the distribution of resources, the conditions of human settlement, and have resulted in a plethora of varied impacts to human populations throughout the millennia.

## 2.0 Basic Earth Facts

### 22 Essential Facts You Need to Know About the Planet Earth

By Matt Rosenberg, About.com Guide

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***A listing of essential facts about the planet earth, the home to all of humanity:***

1. **Human Population of the Earth:** 7,039,191,305 (estimated as of Sept. 14, 2012)
2. **World Population Growth:** 1.092% - 2009 estimate (this means at the current rate of growth, the earth's population will double in about 64 years)
3. **Countries of the World:** 196
4. **Earth's Circumference at the Equator:** 24,901.55 miles (40,075.16 km)
5. **Earth's Circumference between the North and South Poles:** 24,859.82 miles (40,008 km)
6. **Earth's Diameter at the Equator:** 7,926.28 miles (12,756.1 km)
7. **Earth's Diameter at the Poles:** 7,899.80 miles (12,713.5 km)

8. **Average Distance from the Earth to the Sun:** 93,020,000 miles (149,669,180 km)
9. **Average Distance from the Earth to the Moon:** 238,857 miles (384,403.1 km)
10. **Highest Elevation on Earth** - Mt. Everest, Asia: 29,035 feet (8850 m)
11. **Tallest Mountain on Earth from Base to Peak** - Mauna Kea, Hawaii: 33,480 feet (rising to 13,796 feet above sea level) (10204 m; 4205 m)
12. **Point Farthest From the Center of the Earth** - The peak of the volcano Chimborazo in Ecuador at 20,561 feet (6267 m) is farthest from the center of the earth due to its location near the equator and the oblateness of the Earth.
13. **Lowest Elevation on Land** - Dead Sea: 1369 feet below sea level (417.27 m)
14. **Deepest Point in the Ocean** - Challenger Deep, Mariana Trench, Western Pacific Ocean: 35,840 feet (10924 m)
15. **Highest Temperature Recorded:** 134°F (56.7°C) - Greenland Ranch in Death Valley, California, July 10, 1913
16. **Lowest Temperature Recorded:** -128.5°F (-89.2°C) - Vostok, Antarctica, July 21, 1983
17. **Water vs. Land:** 70.8% Water, 29.2% Land
18. **Age of the Earth:** 4.5 to 4.6 billion years
19. **Atmosphere Content:** 77% nitrogen, 21% oxygen, and traces of argon, carbon dioxide and water
20. **Rotation on Axis:** 23 hours and 56 minutes and 04.09053 seconds. But, it takes an additional four minutes for the earth to revolve to the same position as the day before relative to the sun (i.e. 24 hours).
21. **Revolution around Sun:** 365.2425 days
22. **Chemical Composition of the Earth:** 34.6% Iron, 29.5% Oxygen, 15.2% Silicon, 12.7% Magnesium, 2.4% Nickel, 1.9% Sulfur, and 0.05% Titanium

## 3.0 What is the weight of earth?

As odd as it sounds, the weight of earth is exactly zero, because the earth is in orbit around the sun, and as such, the earth is free falling in space around the sun. Any object in free fall in space, including an object in orbit, is weightless. That is why astronauts are weightless when in orbit around the earth.

Weight is a characteristic of an object as it relates to the gravitational field it is resting in. You would have to take the earth to a much more massive world, like Jupiter, and ignoring the difficulties caused by the gaseous make up of the planet, put the earth on a rather large scale to see what the earth weighs there.

The mass of the earth is another matter. The mass of the earth is  $5.9736 \times 10^{24}$  kg, or about 5,973,600,000,000,000,000,000 Kg.