Waves, Waves Everywhere!

Surface Waves
Surface waves are found at the surface of the ocean. These waves form when winds blow over the ocean’s surface.

Internal Waves
Internal waves flow beneath the surface of the ocean due to the buoyancy force. In other words, these waves are created by differences in the density of ocean water at various depths.

Seismic Waves
Seismic waves are waves of energy released every time there is an earthquake. Seismic waves penetrate the Earth’s interior and can be used to study its internal structure. The waves change speed, bend, and reflect as they travel through the layers of Earth. Seismic waves can also be used to look at the seabed, in order to locate oil and gas deposits below Earth’s surface.

Mountain Waves
As wind blows over mountains, eddies and mountain waves can form beyond the mountain. Eddies, which are whirls of air, and mountain waves are usually produced when the air is stable and the wind is blowing faster than 40 knots.

Kelvin Helmholtz Waves
A sudden change in wind speed and direction is called wind shear. Wind shear produces forces that form eddies. Downwind of a mountain in a wind shear zone, turbulent eddies produce Kelvin Helmholtz Waves. Billow clouds form when Kelvin Helmholtz Waves become visible in the air.

Sound Waves
Energy is transferred in the form of waves within air and water. Sounds begin as a vibration and then turn into a series of waves in order to travel. Sound travels in sinusoidal or compressional waves. Sinusoidal waves look like a jump rope moving up and down, whereas compressional waves look like a slinky moving down steps.

Did you know?
Mammals endure hearing damage when seismic waves are sent into the ocean.