

Wave Anatomy

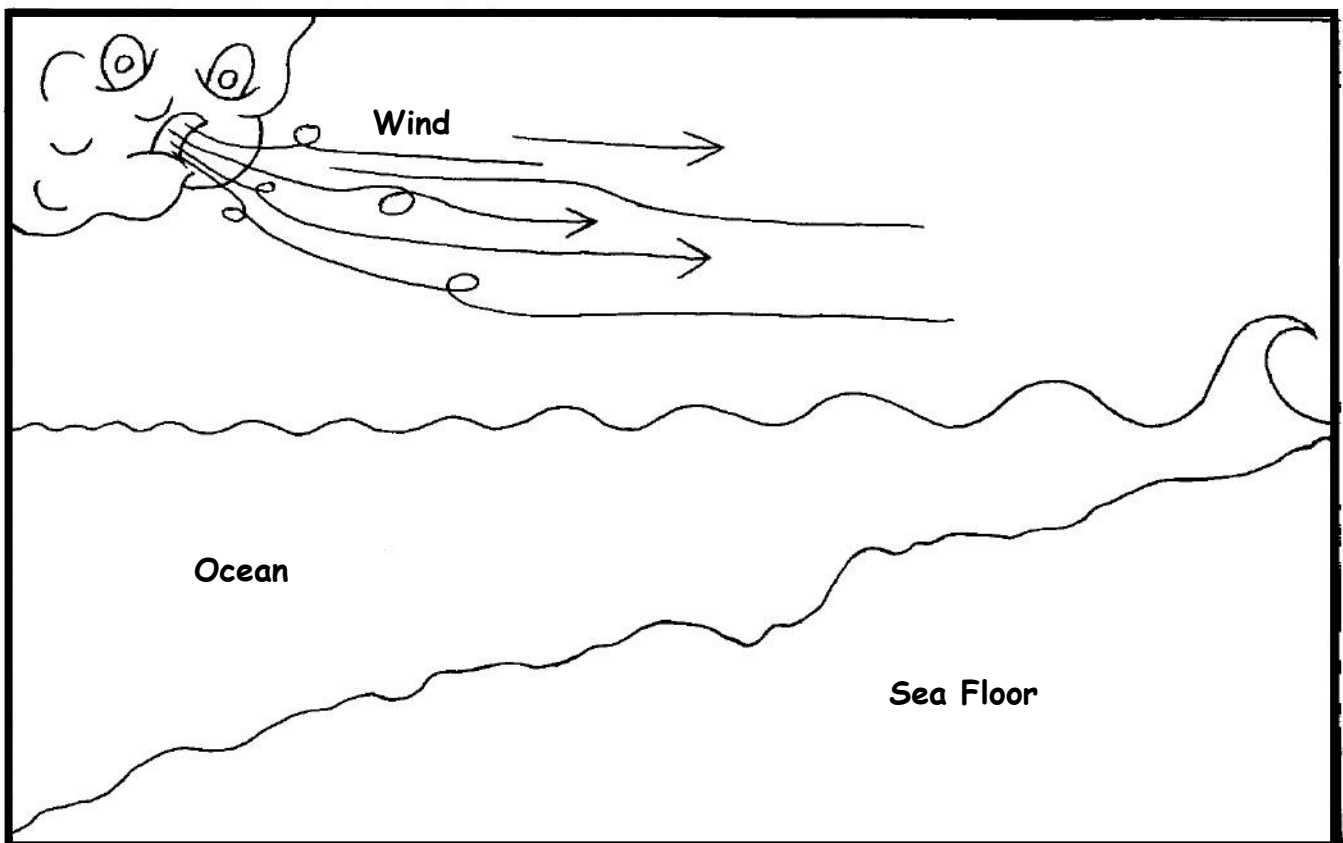
Waves form as a result of different forces acting against the water. Things like the moon's gravitational pull and the Earth's motion can affect tide, but the primary force creating most waves is wind, which is why waves get bigger and the ocean seems angry whenever there's a storm rolling in.

How waves are formed

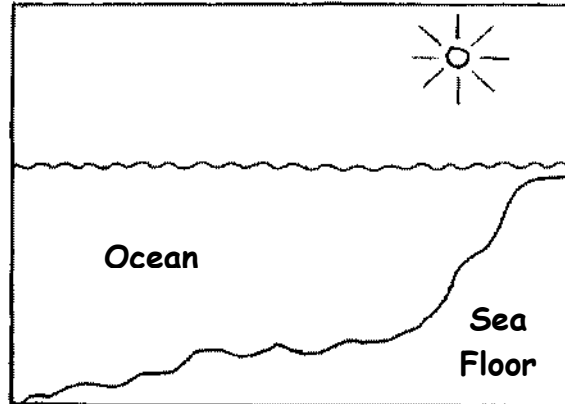
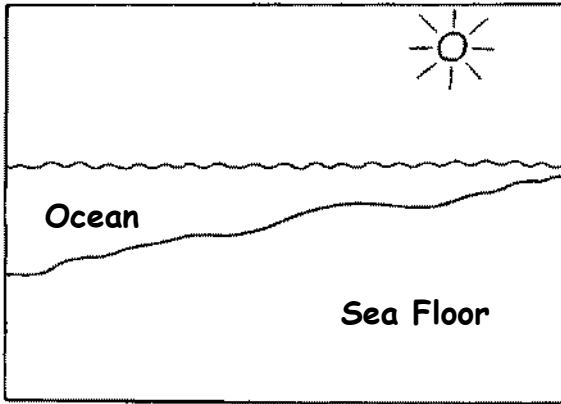
1. Wind blows across the water, creating swells. When a sustained wind blows across many miles, it builds a heavier swell pattern in the water, building more energy behind each wave.
2. As water approaches the shore, the seafloor rises, which means there's less room for the water being moved. This directs the energy upward, pushing the water higher and higher into a wave.

The size of a wave depends on things like the underground terrain and the wind above the water. The stronger and steadier the wind, the more energy and power is given to each wave. Down below the surface, if the underwater terrain is steeper and more dramatic as it approaches the shore, this will produce taller waves. If the seabed rises suddenly near the shore, or if it's shaped like a gutter that channels the water into a smaller point, like the bottom of a pinball machine, this will also produce bigger waves in one area.

Color the picture below:



1. Based on the information just discussed, which of the two diagrams below is likely to produce the biggest waves? Color in the correct answer.



2. During a tsunami, one area of the shoreline may experience higher waves than another area just a little ways away. Which is the most likely explanation for this?
- A) One part of the beach is a little closer to where the tsunami originated
 - B) The tsunami decided it liked one part of the island better and wanted to go there
 - C) Too many people were standing on one part of the island
 - D) The seafloor is shaped like a funnel and is steeper in one region than it is in another, concentrating the energy of the tsunami to produce a higher wave
3. What would you look for if you were looking for big waves, and what would you do when you got there?