Nodes Encyclopedia Article

Nodes

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Nodes

A node is the point in a periodic system, such as a standing wave, that has no amplitude. The word, node, was derived in the fourteenth century from the Latin *nodus* meaning knot. A node is created when a crest of one wave moving in one direction intersects with a trough from another wave traveling in the opposite direction. The two **waves** cancel each other and create a node that appears to be stationary in a standing wave. There is no **motion** in the standing wave at the node but at a distance of a quarter of a **wavelength** away from each node the wave has a crest, where the amplitude is its largest. These points are called anti-nodes. The distance between successive nodes or anti-nodes is equal to a half of a wavelength. If the standing wave is produced in a string that is clamped at each end to a stationary point then the ends can also be called nodes. These points on the string also remain stationary because they are attached. If the string is loose at one end then this point would be an anti-node because the string would be at maximum amplitude. In order for a **sound** to be produced in a stringed instrument there have to be nodes at each end of the string.