

Resonance

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- When a vibrating system is set into motion, it vibrates at its own natural frequency. For a forced vibration, if the frequency of the external force matches the natural frequency of the system, there will be a significant increase in amplitude. This effect is known as resonance.
- The natural vibrating frequency of a system is called its resonant frequency.

Examples of Resonance

- 1. Child on a swing. The swing has a natural frequency of oscillation. If the child (or parent) push with a frequency equal to the natural frequency of the swing, the amplitude increases greatly.
- 2. Opera singers can shatter a crystal goblet (wineglass) by singing a note of just the right frequency at full voice.

Examples of Resonance

- 3. November 7 1940 the Tacoma Narrow Bridge collapsed because of wind-induced resonant swinging of the span of the bridge.
- 4. Quartz crystal in a quartz watch.
- 5. Tidal resonance in bays.